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ABSTRACT

This report is a product of the first phase of a multiyear program of research addressing the subject matter of vocational education. It presents a synthesis of the deliberations of a study group on the nature of vocational education conducted over a 4-month period by representatives from a variety of academic disciplines and professional fields. Following an explanation of the strategy for approaching the subject matter and an analysis of conversations about foundations, synthesized versions of three presentations made to the study group by three resource persons are provided. The presentations are: "Vocational Education Enterprise" (Gene Bottoms); "Vocational Development and Vocational Education" (Ed Herr); and "Educational Reforms and Vocational Education" (Harry Silberman). The next two sections are called, respectively, "Outsiders' Perspectives on Foundations of Vocational Education" and "Insiders' Perspectives on Foundations of Vocational Education" and these consist of the comments of study group members who are either outside or inside the field of vocational education. "Outsiders" represented are Darrell Lewis, Roger Stuewer, Caroline Turner, David Noble and Robert Beck; "insiders" are Jerry McClelland, David Bjorkquist, George Wardlow, and George Copa. The final chapter presents the synthesis across all sessions of the study group and outlines the major questions and suggested line of response for pursuing the description and organization of the subject matter of vocational education from a foundational perspective. (KC)

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SUBJECT MATTER OF VOCATIONAL EDUCATION: IN PURSUIT OF FOUNDATIONS

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PREFACE

This report is a product of the first phase of a multi-year program of research addressing the subject matter of vocational education. While efforts need to proceed on integrating vocational and academic education as they presently exist, the focus in this program of research is to ask afresh, "What should be the subject matter of vocational education?" Perhaps the central purpose and organizing frameworks for the subject matter of vocational education need to change with changing social and economic conditions, or at least be questioned and reaffirmed if still appropriate.

This first phase of the program of research sought to pursue the foundations of vocational education or the subject matter which is basic to, underlying, and drawn upon in the more specific study of vocational education. The strategy selected was to form a study group on the nature of vocational education with representatives from a variety of academic disciplines and professional fields. This report is a synthesis of deliberations by this group over a four-month period. The report contains a description of presentations made to the group by selected consultants, focused commentary by members of the group, and excerpts from dialogue among group members. Because the presentations, commentary, and dialogue was rich with implications for thinking about the subject matter of vocational education, time was taken to prepare this report as a means to share these findings with a wider audience. We hope readers find that the report captures important issues and questions facing vocational education, and general education, as it charts its future direction.

This report would not have been possible without the background and direction provided by a very knowledgeable set of consultants: Gene Bottoms, Ed Herr, and Harry Silberman. The authors are particularly grateful for the opportunity to work with a distinguished set of professionals who made up the Study Group: Robert Beck, David Bjorkquist, Darrell Lewis, Jerry McClelland, David Noble, Roger Stuewer, Caroline Turner, and George Wardlow.

It was their willingness to be attentive, open, candid, and serious in the discussions of vocational education that gave substance and edge to this report. Special thanks also go to several temporary secretarial staff who typed transcripts of the Study Group meetings, and particularly to Susan Gardner who prepared the final copy for publication.

SETTING THE STAGE

Vocational education is in need of an intellectually and morally convincing conceptual framework for outlining its subject matter and for relating this subject matter to other fields. It is past time to move beyond the federal vocational education legislation for a definition of the mission, valued ends, and content of the field. An overarching framework is needed to guide the field into the future and to "place" the several vocational education-related curriculums into a coherent and consistent system (i.e., agricultural education, home economics education, industrial arts, cooperative education, principles of technology, entrepreneurship, and career education). Further, the framework should be responsive to the needs of the multitude of groups being served by vocational education (i.e., both sexes, minorities, immigrants, handicapped, gifted, and adults seeking retraining). From a national perspective, the United States is challenged by educational and economic advances in other countries, both Eastern and Western, to substantially increase the accomplishments of its educational systems. Vocational education should be designed to play a significant role in meeting this challenge.

Strategy for Approaching Subject Matter

The development of a framework for the subject matter of vocational education must begin somewhere. In this case it began through a series of conversations between a group of vocational education professors and professors representing a variety of other disciplines. The focus of the conversations was pursuit of the subject matter which is basic to, underlying, and drawn upon in the study of vocational education. Attention was given to describing the interactions between the study of vocational education and other disciplines, both academic (i.e., sociology, philosophy, and economics) and professional (i.e., engineering and education). The interaction was seen to be informative in both directions. That is, the study of vocational education was to be informed by the views of other disciplines and other disciplines were to be informed by the views of vocational education.

This approach to the problem was selected because an overriding belief was that vocational education had become too isolated from the mainstream of education. In keeping with this belief, it was decided that the initial efforts in developing a fresh

perspective on the subject matter of vocational education should begin at the intersection of vocational education and other disciplines. While there are many other places that could have served as a beginning (i.e., current issues in vocational education, its mission, needs of potential students, and needs of society as a whole), the points of interaction were selected because they seem to loom as an area in most need of being worked out or thought through in providing a direction for vocational education policy and practice. It is possible that a different starting place would have lead to a different approach to describing the subject matter of vocational education, particularly its foundational components and relationships. Even so, one can hope that if the study is programmatic, the consequences of other starting places will eventually be encountered and the basic approach to describing subject matter modified as deemed appropriate.

In Pursuit of Foundations

The process used in this project was to probe for what was called the foundations of vocational education. More specifically, attention was given to becoming clearer about responses to the following questions: (1) What is the meaning of "foundational" in a curricular context? (2) What does this meaning imply for describing the foundations of vocational education? (3) What questions bring out the description of the foundations of vocational education (and subsequent implications for the subject matter of vocational education)? and (4) What strategy(ies) should be used to respond to these questions?

In order to address these questions, an interdisciplinary group called the Study Group was convened to discuss various dimensions of vocational education with the aim of responding to the above questions. The Study Group was composed of individuals knowledgeable of vocational education, general education, and other disciplines at the University of Minnesota (funding limitations restricted selection to one university). More particularly, the Study Group was made up of the following people:

Social Sciences

Philosophy and History	Robert Beck
Sociology	Caroline Turner
Economics	Darrell Lewis

Physical Sciences

History of Science and Technology	Roger Stuewer

Arts

American Studies	David Noble

Vocational Education

Agriculture	George Wardlow
Home Economics	Jerry McClelland
Industrial	Dave Bjorkquist
Comprehensive	George Copa

In terms of process, the Study Group met seven times during the period of October 1988 to January 1989 for approximately two hours per session. After the first introductory session, the next three "background sessions" were planned around a presentation by an invited resource person. The perspective was on vocational education, particularly as practiced in secondary schools. The topics, resource persons, and key questions guiding the background sessions were as follows:

- ***Vocational Education Enterprise***

  Resource Person:

  Dr. Gene Bottoms, Consultant, Southern Regional Education Board, Atlanta, Georgia (former Executive Director of the American Vocational Association)

  Key Questions Addressed:

  1. How is vocational education delivered in this country? What are the various institutional arrangements across the country? What is their relative size in terms of students served? How do the purposes vary across these institutional arrangements? What are the typical fields that make up vocational education and how are they the same and different?

  2. What are the current strengths of vocational education as an educational and socioeconomic enterprise? What are the features important to retain as we think about vocational education for the future?

  3. What are the features of vocational education which need to change if it is to be the best for students and the socioeconomic development of our country in the future? What are the implications of these changes for the content and structure of vocational education in the future?

- ***Vocational Development and Vocational Education***

  Resource Person:

  Dr. Ed Herr, Professor and Chair, Division of Counseling, Educational Psychology, and Career Studies, Pennsylvania State University.

  Key Questions Addressed:

  1. What is vocational development? What are the major theories about it? What do the theories suggest, particularly for junior and senior high school age youth? What is the soundness of the evidence supporting the theories?

  2. What should be the expectations for knowledge and behavior of young people at various stages of vocational development?

  3. How does vocational development relate to other areas of human development (i.e., social, personal, physical)?

  4. What are the implications of vocational development theory for the subject matter or content of vocational education in junior high school, senior high school, and postsecondary institutions? For the instructional process? For evaluation/assessment procedures?

- ***Educational Reform and Vocational Education***

  Resource Person:

  Dr. Harry Silberman, Professor, Education and Work, Graduate School of Education, University of California, Los Angeles (chaired the National Commission on Secondary Vocational Education which prepared a response for vocational education to the *A Nation at Risk* report).

  Key Questions Addressed:

  1. How have the educational reform reports impacted on vocational education?

  2. How did the Commission respond for vocational education?

  3. How do you see vocational education changing in the future? Why?

These background sessions were followed by interactive sessions among Study Group members. Discussion was first led by the group members who were from *outside* the field of vocational education. The focus was on the following questions:

1. What have you learned about vocational education compared to your knowledge at the beginning of the Study Group?

2. What are questions you still have about vocational education?

3. What implications of what you know do you see for the subject matter of vocational education?

4. Based on your own area of expertise, what do you see as the contribution of your area of expertise to strengthening the subject matter of vocational education? How do you see that this knowledge of vocational education might contribute to your area of expertise?

Next, leadership shifted to group members from the field of vocational education with the following questions as the point of focus:

1. From our discussions and readings and from your other experiences, what kind of student outcomes do you see as being important for students of vocational education?

2. What relationship do you see between the academic disciplines and vocational education in view of the above student outcomes?

3. What implications does the above relationship have for the content of vocational education? For curricular structure? For the instructional process?

Analysis of Conversations About Foundations

The interactions among group participants, including resource persons, were tape recorded and transcribed for content analysis. The background materials provided by the resource persons and Study Group members were also available. Content analysis of the transcripts of Study Group conversations was done in two stages. First, the transcript of each meeting was synthesized to reduce its length and highlight aspects of the conversations which were focused on the questions noted earlier as being central to this investigation. The second stage of the analysis was to further synthesize the summary of each session into one composite report. The report was organized around major questions relating to the subject matter of vocational education, particularly as regards to foundations, and suggested responses to those questions voiced by Study Group participants.

Organization of Report

What follows in this report are the synthesized versions of the presentations made by the three resource persons: Gene Bottoms, Vocational Education Enterprise; Ed Herr,

Vocational Development and Vocational Education; and Harry Silberman, Educational Reforms and Vocational Education. Next comes a chapter synthesizing the sessions in which those *outside* of the field of vocational education made their observations and comments. Following this is a chapter which reverses the tables and synthesizes the sessions in which those *inside* vocational education provided their views with subsequent discussion by the Study Group. The last chapter presents the synthesis across all sessions of the Study Group and outlines the major questions and suggested "line of response" recommended in pursuing the description and organization of the subject matter of vocational education from a foundational perspective.

A Note About The Following

After each summary is an excerpted transcription of the discussion which followed. We have excerpted what we believe is a representation of the variety and diversity of ideas expressed during the discussions. In some instances we have taken some liberties in order to make sentences complete and to fill in words which are unintelligible on the tape due to coughing, laughter, or other types of sound which tape recorders seem to adore. Participants have had the opportunity to review the comments presented here.

VOCATIONAL EDUCATION ENTERPRISE
Gene Bottoms

How big is vocational education and what are its institutional arrangements? I can only say that we don't have good answers to those questions. Under President Reagan, the government quit collecting national data and so the best information we have dates from 1982. I do have some more recent data from the southern region.

There are more than ten thousand general high schools in the United States. In most, they have an agricultural education program and a business program. If it is a suburban high school, they have industrial education rather than agricultural education, but the point is that these are generally cooperative programs. Many of these schools are fairly small high schools. In Alabama, for example, there are three hundred high schools with an

enrollment of fewer than five hundred students. Then you have about five thousand high schools with five or six vocational education offerings. These are called comprehensive high schools. These schools will usually have at least four kinds of laboratory programs in the trade and technical areas. In addition, there will be agriculture education, health occupations education programs, business education, etc. Both Georgia and North Carolina follow a comprehensive high school model and I think Minnesota is going back to this model. There still exist over 225 specialized vocational high schools in the country. Massachusetts has a very good program in this area with two tracks—one mathematics and science and the other with related mathematics and science that is taught in conjunction with occupational studies. Connecticut has a similar system with specialized schools dotted around the state. The newest institution on the landscape is something called the area vocational high school center. There are around 1300 of these institutions, most of them built after 1960. Rural congresspersons believed small town youth were being cheated out of vocational education and so these institutions were designed to service a large area, utilizing one facility with more specially equipped laboratories than a single school could provide on its own. One facility could serve about a dozen schools. Two-thirds of the enrollment in area centers are secondary high school students and the rest are adult students, all in the same building at the same time. Then there are 308 specialized postsecondary schools which only offer one program such as aircraft mechanics, which is located at an airport facility. Then you have about five hundred postsecondary vocational technical institutes. These are getting away from the craft approach and are increasing the amount of emphasis on mathematics and science. There are 162 technical institutes which offer an associate degree and about 270 community colleges with very strong programs in vocational education. Finally, there are 185 four year colleges that offer a two year program in vocational education.

Most of the area vocational education centers describe their primary purpose as training people for entry-level employment, but really there is no consensus on why secondary vocational education exists. There is no accountability for the system; any role will do and people can go where they want to—there is no way to succeed or fail. If you look at most school board structures, you will not find any reference to vocational education in the board policy.

Who is enrolled in the field? Again, there is no up-to-date information. From 1965 to 1980 there was a growth in vocational education corresponding to the areas where job

growth was occurring. Agriculture enrollment has probably declined since 1980, but in the states that I work closely with, enrollment has remained fairly stable. Vocational education can be divided into three types: home economics, which has a nonoccupational mission (i.e., preparation for family life); a package of programs labeled general occupational which isn't very specific, but includes programs such as typing, industrial arts, and computer literacy; and, finally, vocational education programs with occupationally specific goals. In 1982, twenty-two percent of credits earned in vocational education were in consumer home economics, twenty-two percent were in general occupational preparation, and sixty-six percent were in occupationally specific programs. It is interesting to note that only about half the students returned for the second year of vocational education in this 1982 data. The problem is that there is no real definition of a vocational education "completer." If you ask a local director to name the youth in their schools that were vocational completers, they do not follow the state guidelines. Whatever definition the state happens to have for a vocational completer, the state agencies' leverage is not sufficient to insure that these rules are complied with locally.

Moreover, there is a great deal of moving around in these programs. It looks as though students move when they run into something difficult. What this means is that only about fifteen to twenty percent of American high school graduates really finish with a solid concentration of at least four carnegie units in a planned program of vocational education studies. There are now about one hundred and fifty hours of teacher student contact in one Carnegie unit.

We can get a feel for what kinds of students are enrolled in vocational education at the secondary level from the 1982 data. The bulk of the students come from a very small range. Sixty percent are in the 25th to the 75th percentile. About fifteen percent of the students in a vocational education program will be in the upper quartile of achievers. In that fifteen percent, you will find kids not doing well anywhere else in school. Occasionally, you will find a person planning to go into engineering who is in an electronics program, or one planning to go to medical school who is in a health occupations program. You find all kinds of plans for the people in this fifteen percent. This is what is difficult to get people to understand about vocational education. They believe the only youth who take vocational education courses are the ones at the lowest end. I recently met with the Southern Regional Board of Governors and explained that their college preparatory students were averaging four units of vocational education, their general

education graduates were averaging four plus units, and their vocational completers were averaging seven units of vocational education. They never realized their college preparatory students were so involved in vocational education. It has become very mainstream. The students who finish a vocational education program are just as likely to succeed after school as those who take a general curriculum. In fact, vocational education completers average two units more than many other high school completers. The problem is that when you pull the transcript, the real difference is in the academic area. This is the area on which the reform movement has not concentrated. The vocational education completer will take two units in mathematics, but it's the same mathematics taught twice under different names: consumer mathematics and basic mathematics. They take general English, not college English, and general science, not specific sciences. There are many students who are taking a few courses and are then "bailing out" of academic courses. I feel that these students were discouraged because they were allowed to take very low-level academic courses in high school and were having to repeat much of their mathematics, science, and even English over and over again.

The story of Michael is typical and illustrates my point. As we improved the secondary school system, Michael wound up getting an education that was inferior to the one his father received, twenty-five years earlier. When his father was in school, they had one curriculum and it was college preparatory. Everybody took two years of algebra, trigonometry, geometry, physics and chemistry because that was all that was offered. By the time Michael came to high school, we had a general academic curriculum and eight vocational education offerings. Michael took a course here and a course there. Michael wanted to pursue construction as a career but no one ever explained to him that if you were to go far in that industry, you needed a little physics and some mathematics beyond general mathematics. He was not allowed to take anything other than general mathematics or general science in high school. Nobody ever challenged him to link his vocational and academic program together. He worked four years for his father as a cabinetmaker and became very good, but he began to ask himself where he wanted to be with his life and he decided to become an industrial education teacher. Now Michael is going to a community college taking mathematics and science courses so that he can ultimately get into regular mathematics and science courses. Many folks aren't willing to go through all that. Michael was simply allowed to wander around high school. If you aren't college preparatory, nobody pays any attention to the type of courses you take. You can take anything as long as your accumulation comes up with the right number of credits at the end.

One of the important things I want to get across is that one of the problems we are going to have to deal with is the very low level of expectation for vocational education students. It comes from "both sides of the aisle." The kids can do much better than the expectations and the system should expect more. I used to ask teachers in vocational education why they didn't encourage students to take more introductory physics courses and the teachers told me the students didn't have the time. They have the time. In planning vocational education programs, there are never any mathematics or science or English teachers on the committee, so there is no input from the academic side. I've become convinced that the notion of preparing students for entry-level jobs after high school has a leveling down effect on the program of studies for vocational education. Mathematics and science competencies for these entry-level jobs are just not very high. There is no policy at the local level in terms of expectations and very few preparatory courses are offered for vocational education teachers to emphasize the integration of academic and vocational subjects. There is also nothing on how the academic teacher should connect his or her subject to their utilities in an occupational context. We still think of secondary vocational education as a training system and not a learning system.

Highlights of Discussion Following Bottoms' Presentation

Copa: Here in Minnesota, teachers in secondary vocational education were asked to identify the most important purpose of vocational education and across the state the most popular answer was the exploration of occupations. The second highest ranked answer was preparing students so that they could obtain some advanced standing in a postsecondary educational program. The third answer was preparation for work.

Bottoms: I was real big on exploratory education at one time, but I'm really concerned about exploratory being a driving purpose of the secondary vocational education system because it means nonrigor. It means that students will be floating with no real emphasis on one subject. This is a completely unstructured vocational education program and it's the same thing on the academic side. Every time the kids encountered something rigorous or difficult, they jumped. I've concluded that unless one can find a good

structure of studies leading both to employment and postsecondary education that ties the two together in a coherent and rigorous program, I'm not very optimistic for vocational education being a mechanism for advancing mathematics, science, and basic competencies. You have to give them structure.

Bjorkquist: I think what you point out is that one of the difficulties with exploratory programs is that they never define a method for exploration.

Bottoms: There is no disciplinary base. We tend to talk about the hands-on approach, but never the mathematical or scientific base that is the background to the skill.

Bjorkquist: You also hear teachers using exploration as an excuse to do something not very goal related. In Minnesota, the people doing the best job are those in health occupations. The only thing you can do with a secondary education in health is become a nurse's aid or a geriatric aid, and so there is an emphasis on directed exploration.

Bottoms: I would envision for every vocational education area that one lay down a program of study. I would add to that, that you must complete a related academic sequence, some demonstrated level of measurable achievement. I would begin to look at a program of studies which is fairly structured such as twelve or fifteen units of academic and vocational education studies. They have to be coherently tied together. Youth need more structure in high school.

What we need to do is to couple the vocational concentration with higher level mathematics and science to better educate youth. It will add an element of motivation and provide a basis to connect their mathematics and science. For some reason, mathematics and science tend not to show a great deal of utility the way they are currently taught. Connections are never made. Many of our Southern state sites are adding applied physics and it's proving very successful. Some are attempting to put in technical mathematics where

you pull in concepts from algebra, trigonometry, and geometry and teach them in a functional manner.

Lewis: One observer concludes that one thing that is happening in schools is the "great compromise," that is, the bulk of students staying off the teacher's back and vice versa so he or she can work with those at the lower and upper end.

Bottoms: Minimum high school graduation tests have empowered teachers even when the standards are low. It helps them get family support and teaching support. External tests empower teachers. It's a way to galvanize home support and get recognition. Programs where students have to pass a graduation test are more rigorously taught and students are more alert and intent on learning.

McClelland: Kids in the inner city have all kinds of environmental handicaps. And we wish to encourage those students and open doors for them. How does this relate to increasing our expectations?

Bottoms: I believe in "tough love." You set high expectations, but you demonstrate your willingness to walk the extra mile. In Philadelphia, a program takes kids with a skill level that is very low. They take automotive mechanics, electricity/electronics, business and office, and marketing. They have had tremendous success where a team of teachers has worked together and raised expectations and tied things together. If we establish standards, we are going to raise basic competencies and introduce students to further opportunities. If we give extra help, they will respond. The worst thing we can do is ignore them and expect very little.

Bjorkquist: Could we jump back a little to the purpose of vocational education. You said it should have two elements to it, employment and the second would be continued learning. Would you talk about employment as a goal?

Bottoms: I think you have to conceptualize an approach in which you're going to maximize the potential of every student. There's a vocational-technical

school in one state doing a great job of connecting academic and vocational studies. I spent a lot of time looking at their material, but I decided not to use it. I discovered that they had lowered the academics down to entry-level job skills where they had defined the lowest level jobs out there and the test scores were not going up as a consequence. How do you design a curriculum that begins to maximize the potential of every student? That's where the entry-level job focus brings us down to too low a level. I pay less attention to whether it's organized as an occupationally specific program or organized as a cluster of certain themes. The thing you have to retain in secondary vocational education is some linkage between what is going on in the school and the reality of the workplace. You can maximize youth potential around auto mechanics if it's a solid program or around a broad technical program, but youth have to see some connection to what they are doing in the real world.

Bjorkquist: So it's the idea that they will be prepared for some kind of entry-level job even though we don't focus on that? They will have the skills and they will be able to do the entry-level job without our focusing on it?

Bottoms: However you organize the vocational education area, it has to be organized around some sort of distant focus which is connected to potential employment opportunities. Take electronics. The craft approach to organizing the secondary curriculum will remain useful for some occupations, but, increasingly, youth are going to have to have planned programs of studies across several technologies and with a basis in mathematics, science, and technology. The emphasis will shift from eighty percent on teaching them nifty skills to a fifty or sixty percent emphasis on the kind of activities in which youth apply the mathematics and science concepts and come to understand how things work.

Lewis: Even if you train someone as an electrician, for example, with the assumption it will lead to a job, the unions may prevent entry into the very professions in which you are training people. How do you address that?

Bottoms: The real bottom line is whether or not the individual has the ability to continue to learn in the work setting. Because of that particular barrier, it's becoming increasingly important to employers that the individual have this ability to progress because of the constant changes in the workplace.

VOCATIONAL DEVELOPMENT AND VOCATIONAL EDUCATION

Ed Herr

In order to understand the relationships between vocational development and vocational education or career guidance, it seems that first one has to think of vocational development as the target of vocational education and other specialties. Vocational education and vocational guidance are really intervention strategies with the potential for modifying vocational development processes. Vocational development theories are really concerned about the situational dimensions of work-related behavior and the changes that occur in these dimensions across time. Vocational development tries to describe the lifelong behavioral processes and the influences that interrelate with the formulation of work values, choice of occupation, decision-making style, role integration, and self and career identity. All persons engage in vocational development. It goes on whether one intervenes in it or not. Given that, let me describe the major perspectives on vocational development, relating these perspectives to some of the major theories which address multidisciplinary vocational development.

Vocational development theory itself is an attempt to interpret the flow of understandings, experiences and commitments, values, and skills by which one tries to forge various aspects of identity (i.e., self-identity, occupational identity, and career identity). Career, occupation, and job are really not interchangeable terms. Jobs and occupations can be classified and chosen in a fairly deliberate sense. Careers, on the other hand, are really created or forged by the way people convert their possibilities into actualities over time. Decision making becomes very important. Careers are created by what one chooses and what one avoids choosing. Careers unfold over time out of a complex series of choices of jobs, occupations, and family roles.

The second major theme in vocational development theory has to do with attempts to understand the process of decision making. Decision making is a public testimony about how one feels about oneself, one's abilities, one's willingness to make commitments, and one's alternatives.

The third emphasis in vocational development theory has to do with what might be described as the functional relationship between time and social structures and personal attributes. One might define career behavior, for example, at a particular age. How does that notion change over time? What you have is a structural dimension and a changing or longitudinal dimension. Do personal attributes such as gender and socioeconomic background interact to mediate career behavior? Another dimension which is growing in importance is the concern about cohort effects. How does being born in a particular historical period or in a particular nation or economic period influence career patterns and thus differentiate across generations? How do personal attributes, the technical context, and the content of work interact with job satisfaction?

The fourth major emphasis has to do with the interaction between education and training and vocational development on the one hand, and what happens after one's major work life is concluded. It's important to understand how initial education experiences prepare people for entry into the workforce and the responses that are required to facilitate that transition. How one chooses vocational education, for example, and how one makes certain kinds of educational or training choices affects one's career path. What precludes one from entering certain occupations or careers? These are being described as self-efficacy issues which come out of social learning theory. For example, not choosing mathematics precludes a whole series of options relating to a number of emerging occupations which require mathematics and science to perform well.

Finally, when one looks at vocational development theory, one of the major emphases is the issue of examining the effects of life course transitions on poor behavior. Focusing both upon the changes which occur within the individual across time, those which occur in the external world, and those which occur in the boundaries between them. These changes have been described as the developmental approach to vocational development theory. What this suggests is that life course structure tends to shape career development behavior. The best-known scholar in this field is Donald Super. He suggests that one can look at work-related behavior across the lifespan in five different stages. One

is between birth and fourteen, the growth period. He doesn't do a lot with this stage, but he does describe more about exploratory behavior which begins between ages fourteen and twenty-five. Then he describes the establishment behavior which is between ages twenty-five and forty-five. This phase is the point where one gets into a job, advances in it, and makes major commitments to it. From age forty-five to age sixty-nine is the maintenance stage. This is the plateau, for in most occupations people reach their peak at roughly forty-five and from that point on they refine, they hang on depending on their own psychology, and they tend not to advance. The fifth stage is the age of decline which starts at roughly age sixty. An individual begins to confront retirement and to change some priorities, wanting a lifestyle where work is not central. What is important is that in each stage there are certain developmental tasks, types of questions, and substages in which individuals need to confront problems and master them.

For example, during the exploratory period—adolescence—the developmental paths are crystallizing into a vocational preference, sorting out from all the opportunities certain ones which can be identified with and translated into a plan of action. In the establishment stage—early adulthood—the developmental paths become more stable. Each of these paths is broken down into behaviors and attitudes. They become a contextual framework for organizing guidance programs or fusing career concepts into academic subject matter, and vocational subject matter into vocational education programs. If you talk about vocational development maturity or career maturity, Super, for example, has postulated that the same five factors are as important in mid-career as they are in adolescence. These include planning, exploration or orientation to exploration, and doing this with a purpose and with some knowledge of how to explore the facts. In a technical sense, one can sort out alternatives, value them, weigh them, and examine their likelihood of occurring and then commit oneself to some decision. This promotes an orientation toward reality, which means not operating in some fantasy world, but having a grasp of one's ability, one's aptitude, and how alternatives might serve a purpose. The important point is that these factors tend to be a part of career maturity in any time period, though the specific topics that need to be explored differ from stage to stage.

Let me suggest the theoretical perspectives in which I classify vocational development theory. I see it in five clusters: (1) trait or actuarial approaches, (2) decision theory, (3) situational or sociological approaches, (4) psychological approaches, and (5) developmental approaches. The trait factor approach tends to present the individual as an

organization of capacities and preferences which can be measured. Aptitudes, interests, values, aspirations—all of these might fit into some trait conceptions of individuals. Are these traits measurable? Are the measures reliable? Are they predictive of behavior and performance in occupations or in education? Trait approaches don't say much about how these develop; they simply measure certain characteristics.

The decision approach tends to come out of mathematics models or economic models. They try to understand what mechanisms underlie why people choose what they choose, why people differ in risk-taking style and self-efficacy. Do people see themselves as able to perform what the particular option requires? Does the person value the outcomes that are likely to ensue? There is a lot of effort to describe the decision-making paradigms as to what steps people pursue to make wise choices. Considerable effort is put forward about examining the process of decision making as opposed to the actual outcomes on the assumption that there are always systems of information and systems of behavior that, if followed, will likely lead to a reasonable choice. The final outcome, however, is less important than the process.

The third model is the sociological approach which focuses on the impact of family, work environments, accidents, chance, and one's position in the social structure. The model holds that all these elements represent the context in which people negotiate their identity. Aspirations and expectations which have a significant influence on how people view themselves and their choices come from this. The model really tries to describe why individuals from different groups have different aspirations and different expectations. Education counseling and vocational education are really viewed as interventions in trying to neutralize some of these impacts.

The fourth approach is a psychological approach which posits that people develop certain needs, drives, and levels of self-confidence which they tend to use in self-classification to identify those environments which are likely to gratify their own characteristics. Different personality types are likely to seek different occupations, different curricula, and different college majors. The notions of Ann Rowe are important here. This approach tends to see people as self-classifying—moving and being comfortable in environments related to the kind of people they are.

The final theoretical approach is probably the most comprehensive. It tends to be concerned with movement across time, from general to specific, with processes of compromise, that is, processes which try to maximize one's gain and minimize one's losses. People tend to go through mini- and maxi-cycles of choice in each of the life stages. They move from fantasy to realism. Prior to age fourteen all interests are equal. From eighteen to twenty-five, then, people begin to concentrate on their real interests. As they become older, they move into a more tentative stage where it is not only interest but capacity that drives them. As one becomes older and more experienced, one becomes more realistic in the formulation of preferences.

Highlights of Discussion Following Herr's Presentation

Copa: The life stage theory suggests a concept called vocational maturity and that maturity can mean different things at different ages. What is vocational maturity for an eighteen year old?

Herr: The person would be able to use resources and figure out different choices and be aware of factors to consider in formulating his or her vocational preferences. They would be aware of the contingencies which affect their choice. They might not be fully committed to a certain course, but they might have some good ideas. They are somewhat concerned with planning, but not fully committed. They can consider their own independence and choice, but they need to have some sense of integration. They ought to be able to figure out some kind of planning scheme which allows them to figure out what else they need to know in terms of making their choice.

Bjorkquist: I think the first vocational choice is becoming less important as people are having to face the problem of having to make more and more career decisions throughout their work lives.

Herr: There are several ways to look at that. In a sense choices are not irreversible. The first choice is not the ultimate cul de sac. But if a young person has an unfortunate labor market experience, it can become an albatross. We need to help people understand general employability skills,

how to get along with co-workers, and the importance of understanding expectations and the organization. People who do not get an effective orientation to these aspects of work in their adolescent years are going to be increasingly disadvantaged.

Wardlow: Could you define career again?

Herr: Career is defined in two ways. One is the process occurring across time, linking jobs and occupations. The other definition suggests that career is not classifiable. It's almost idiosyncratic, not normative. We do talk in normative terms about life stages. The way people proceed through life stages tends to be a function of their own decision making.

McClelland: Is career development very much a middle class notion applicable to middle class individuals but less useful in understanding the work behavior of working class individuals?

Herr: That is a criticism of career development theory. The idealized model of career development is certainly middle class, but I don't think it's relevant only to them. What career development theory suggests is that one enters institutions which impose a career development of their own on the individual, working class or not.

Stuewer: The vocational maturity of the eighteen year old had an emphasis on skills. If you take your own field, business education, there may not be much of a relationship between the content and the kind of behavior you describe.

Herr: Business education tends to be more oriented toward general employability skills as well as technical skills. It tends to give more of the career development skills or vocational development skills.

Bjorkquist: Those aspects of career maturity you mentioned are part of the implicit curriculum. They don't become very explicit. What people suggest vocational education teach is very much a technical, skill oriented curriculum.

Herr: Yes, and those skills tend to become obsolete quickly. General employability skills and career maturity skills tend to be more enduring.

Copa: Does vocational development theory suggest some needed shifts in the subject matter or the content of vocational education?

Herr: I think so. I think in addition to technical skills and occupationally specific skills, the *Unfinished Agenda* suggests that there is room in vocational education for personal skills, personal development for general employability, and skills of understanding work and organization. I believe that many kids in grades nine and ten are not yet at a point where they can really make use of the commitments vocational education expects of them. There has to be a balance between specific occupational skills and general employability skills. They really need those marketable skills to move from vocational education to the world of work, but there is a slight conflict there. Grades nine and ten are not the places to get a real commitment.

McClelland: Many of the vocational development theories mirror our societal values, particularly productivity and materialism. I don't want to say the theories are inaccurate, but I don't like what they are saying.

Herr: Students from third world countries point out to me that vocational development theories are very much lodged in the economy and context of the United States. They point out that in the Third World, many of these concepts just don't apply.

EDUCATIONAL REFORMS AND VOCATIONAL EDUCATION

Harry Silberman

In December of 1984 we published our report, *The Unfinished Agenda: The Role of Vocational Education in the Secondary School.* Much of the discussion of the National Commission which prepared this report had to do with challenging the assumptions that underlie the educational reform movement that was initiated in 1983 with the publication of *A Nation At Risk.* First let me comment on some of the assumptions in that report that raise some problems.

The report was very concerned with the competitiveness of the American labor force. It has become apparent that we are going to have to increase the quality of our student body and, in consequence, there has been a lot of activity and concern about raising the academic standards for all students. This course of action assumes that schools are largely responsible for economic conditions. We always use our schools as a scapegoat when we have national problems. We did it during the Sputnik era, and we're doing it again now. It's easy to ignore the trade deficit, the budget deficit, the cost of labor, the short term perspective of many managers and policymakers, our global defense strategy, and many other factors which effect our competitiveness.

A second assumption of the school reform movement is that having more of the same academic courses in the curriculum and making them a greater part of the graduation requirements would improve the school system. They assume this will improve the competitiveness of our labor force. They don't seem to worry so much about changing the way these courses are taught.

Thirdly, there is an assumption that general academic courses are much more transferable than the practical or applied courses or vocational education courses. Our Commission had a lot of problems with that. There is a tendency to ignore psychological evidence on the transfer of learning, that learning is very context specific. There have been many studies that have clearly shown that the extent to which a course generalizes depends upon the similarity between the conditions under which that course is learned and the conditions under which it is supposed to be applied. It's kind of ironic that vocational education courses which are seriously attempting to simulate realistic environments in a

variety of occupations—a condition which should promote transfer—are considered to be too specific and not transferable.

A lot of reformers seem to feel that general education and vocational education are somehow mutually exclusive. They assume that general education teaches students to be able to analyze and challenge, and maybe reform, the existing system—not just the work system, but the political and social system as well. Vocational education is typically seen as teaching the students to fit in and adapt to the system of work. The assumption is that these students could not possibly understand the system; they are just learning how and not why. This ignores the need to understand the system before you can hope to change it.

It also ignores the educational value of learning specific occupational skills. It ignores the instructional process currently in practice, encouraging students to plan and make decisions about their own lives rather than waiting for the teachers to tell them what to do. There are some long-lasting stereotypes people have of vocational education. Perhaps what has happened is that student outcomes have tended to become confused with course labels. The fact is, all courses attempt to prepare the students for both work and life. The outcome can't be predicted from the labels; the outcomes depend largely on how a course is actually taught. John Dewey said it best: "the ends are inherent in the means."

The second area of my comments concerns the response of the vocational education community to the school reform movement. It is largely defensive. I just wrote fifty state directors of vocational education, asking them to tell me what has happened in their states since *The Unfinished Agenda* was completed. I received twenty-seven replies. Four generalizations can be made from them. The first is that there has been a tremendous upsurge in attempts at articulation: two plus two programs, two plus two plus two programs, etc. The underlying motivation is to try to promote enrollment which is declining in vocational education as a result of increased academic requirements for high school graduation. A second obvious development is vigorous recruitment efforts to get people enrolled in vocational education. Another major activity is to get requirements changed to allow cross-credits which would permit students to substitute vocational or applied academic courses for some of the academic requirements. The purpose of these courses is to allow students access to some of the vocational education electives which the new requirements have constricted. There is a major movement across the country to use vocational education to strengthen basic skills. This has been done in some places by

reducing the amount of field work, or done at the expense of laboratory projects where students actually learn by doing projects. There has also been more attention to reading, discussion, and attempts to get more students to do much more academic work in the vocational classroom environment. Meanwhile, vocational education enrollments are declining. In many states there are beautiful shops, but empty classrooms because vocational teachers can make more money working for the private sector. The number of vocational education teachers are declining even more than enrollments. This suggests that the future of vocational education, at least on the secondary level, is not very bright.

I have two recommendations concerning future directions for vocational education. First, we must take a broader, more long-term perspective on educational reform. The most important outcomes—the ability of workers to cooperate with one another, their ability to assume greater amounts of responsibility, and their flexibility—will be the demands of the future labor force. Most of these outcomes are not going to be achieved with short-term crash training programs. They take a long time to develop and depend on a person's whole life history. By taking a "broader perspective on educational reform," I mean to emphasize that education is much more than what kids learn in high school.

We must include the workplace, the home, and the community as part of the educational environment. These other settings have to support what the schools are trying to do if we're serious about educational reform. For example, intervention in the home and the quality of parenting are essential. This relates to the role of the workplace. Studies indicate that a parent's child-rearing practices may be determined by how they are treated at work. The work culture lets the parents know what constitutes a desirable quality in an adult. Child-rearing practices are affected accordingly. Blue collar workers tend to emphasize obedience and conformity in their children. White collar workers emphasize achievement and independence. On-the-job training is one of the most important influences on the education of our future workforce. Indirectly it affects parenting. Workers who experience the value of learning in their own lives are going to transmit that value to their children. Recently I was involved in some General Motors training programs. The company threatened plant closure if the plant didn't vote to adopt a participatory management scheme along the lines of the Japanese auto industry. They began an intensive last-minute two-week training program in which I was asked to participate. It was totally ineffective. Corporate training has got to be a part of the ongoing work routine if we are going to maintain a productive labor force. Most of the skills we are trying to develop to

upgrade the competitiveness of the economy such as responsibility, cooperativeness, and flexibility need to be learned at home and in the schools as part of the daily work routine long before people enter the labor force.

The community is also going to have to play a greater role in educational reform. Segregated housing patterns make it difficult to promote greater equality in the schools. Workers in this society lack respect and it has had a big impact on their productivity. Not everyone can be a professional, but that seems to be the frame of mind of most parents. The fight over the recent trade bill requiring sixty days notice before plant closing sends a message to workers about what the country thinks of them. The media often treat them as emotional dummies. We have to start paying more attention to workers if we want to increase the competitiveness of the labor force. But there are some healthy signs on the horizon. The new participatory management systems of production will begin to raise the status of workers. Giving workers more responsibility, more decision making, will increase their status. As this happens, the status of vocational education programs will rise. The status of training programs is determined by the status of the occupations for which they are preparing people. Nobody looks down their noses at the training programs of doctors and lawyers. As the status of vocational education rises, we're going to have a larger clientele of students, more need for instructors, more of the college-bound kids will enroll, and we'll attract more funds to buy new equipment.

My second recommendation is to continue to pursue the goal of integrating general education with specific skills training, integrating the liberal arts with the practical arts. Specific skills training is essential. We have to recognize that this training does have genuine educational value; it builds confidence and self-esteem. Until the young people learn how to operate the computer keyboard automatically, they can't really think about what they are putting into it. Academic courses need to incorporate more application and field experience. Mathematics courses need to focus much more on applied mathematics, not mathematics for mathematicians. On the other hand, vocational education courses are going to have to be much more concerned with emphasizing general principles of technology, teaching students the why as well as the how. Students have to understand the structure of work. One way is to get vocational education and academic teachers together, to help students make the connection between theory and practice, between thinking and doing, and between principles and applications. There is an attempt to explicate all the academic skills that are inherent in vocational education courses and to reinforce the

academic skills, but we must be careful not to cut the heart out of our vocational education programs. We don't want "watered down" survey courses in which students talk about doing work instead of working. Vocational education without the laboratories, without cooperative education, or without field-based training ceases to become an alternative educational experience. Vocational education should be a broadening experience.

Problems arise because the process of integrating vocational and academic education can be sabotaged by both sides. Vocational education instructors can teach specific skills without worrying too much about students understanding principles. Academic teachers can guard their turf and refuse to grant credit for what they consider second class applied academic courses. They also may not be interested in fusing occupational examples into their academic courses. People tend to teach the way they have been taught. Sometimes adding a vocational education component to academic courses adds a lot of confusion to these courses. The teachers feel it detracts from the coherence and neat unity of their courses. It might even reduce their status.

My last point is about what academic subject matter should be included in vocational education courses at the high school level. For example, might we take the concept of reinforcement from psychology or labor market theory from economics and make this a part of the subject matter of vocational education? Let's pursue the psychology topic. Are we talking about teaching a behavioristic orientation, a cognitive orientation, or a social learning theory orientation? The people who advocate these different views feel very strongly about them. In order not to water down the psychological concepts, you have to explain the different theoretical positions. In the field of economics, if we talk about labor market theory, we could talk about supply and demand, wage determination, collective bargaining, racial and sexual discrimination, etc. But you still have to deal with different theoretical approaches, neoclassical, Marxist, etc. If you want to do justice to the topic, you have to generate more and more subject matter topics. I can quickly foresee that this subject matter approach is going to follow the pattern of general social studies courses. The text will eventually contain 689 pages of unrelated facts and figures. Soon our vocational courses will be reduced to academic courses and the academicians will be happy, but the education of the young will be sacrificed in the process.

Perhaps we should adopt a more traditionalist perspective and figure out what these courses *should* be doing. What is the general outcome that we want in terms of personal

skills, attitudes, and behaviors? What should the students acquire that will help them become better workers, citizens, and family members? Then instead of immediately going to academic disciplines, we might start with key characteristics that we are trying to build in these young people, regardless of curriculum. We might be better off. It seems clear to me that the trends toward increasing use of services, globalization of the economy, and trends toward pluralistic labor forces will mean that human relation skills, team skills, and cooperativeness are going to become very important. That suggests that cooperative projects should be included in coursework. I'm not talking about simply dividing students into groups to work together on projects, but, rather, to assign interdependent projects that cannot be done individually such as building an energy efficient house. Given this kind of project, what kinds of disciplines might offer significant course content so that young people might discuss it in the course of conducting these cooperative projects? There are research findings on listening skills, on conflict resolution, on trust, and on other cooperative skills indicating that they can be taught. We need to start teaching meeting skills, communication skills, and so forth. Group dynamics is an aspect of psychology that would be appropriate to the development of human relations skills. If you talk to consultants in the private sector about what is the big problem out there in the workplace, they will tell you it's communication. If you talk to family counselors, they will tell you that it's people not being able to get along. They tell you people don't communicate, listen, or trust. All the major manufacturers are moving in the direction of participatory management, but I don't think we have the skills to do it. We must develop them.

Another major domain that should be developed at the high school level is in the realm of developing responsibility. Psychologists refer to this as self-regulatory skill. The domains of appropriate content that would be relevant to designing student activities might be goal setting. How to set them, how to agree upon them. We might look to philosophy here; it has much to teach us. We might also study planning, decision making, time management, evaluation, and feedback. There are a few programs that are getting kids to construct small businesses and market their product, solve problems and cope with financial issues, and deal with issues of integrity and quality. These kinds of programs could be built into our schools to a much greater extent than they are now. One instructor I visited got his students involved in entering international film contests. I have never seen such motivation. Those students competed against the best universities in the world and won their share of prizes. They traveled to London to get pictures of castles in order to reproduce them. If you ask them to explain what they are doing, they're using their Macs

and pointing to demonstrate their theories, and talking "a mile a minute." Is this the trivial vocational education we keep hearing about in the academic literature? Those young people were learning to be flexible problem solvers. They were learning to cope with change. They were learning stress management, self-efficacy, and motivation. They were learning how to learn. We have to begin to stress flexibility and adaptability as educational goals. Quality vocational education is a good start in that direction.

Highlights of Discussion Following Silberman's Presentation

Bjorkquist: You made a comment on the response of vocational education to the reformers. Do you think the federal legislation for vocational education is a help or a hindrance?

Silberman: My colleagues in vocational education would not agree with me, but I think it's a hindrance. Legislation, especially the Carl D. Perkins Vocational Education Act, has been aimed at special populations. The legislation doesn't distinguish between short-term job training as a safety net for hard to employ populations in order to serve industry, and vocational education as a student centered, preservice, preventive long-range program designed to serve all students in preparing them for work and life in general. For political reasons, the legislation has partitioned the pie amongst various interest groups, and has come to represent them more and more. On the other hand, we have expanded the years of schooling that are required for most jobs and inflated credential requirements. Consequently, the point of entering the labor force has moved up and much of the current training is being done at postsecondary levels. Yet the funds haven't shifted to keep up with this. Very little of the funding is expended on vocational education at the postsecondary level. The legislation has become a job training act for special populations.

Copa: You seem to be saying that there are many possibilities for vocational education beyond job specific training in the high schools. Could you comment on that.

Silberman: I see two kinds of vocational education outcomes. One is the economic, or extrinsic return. You are being trained for a specific job. When you acquire a certain skill, you acquire a credential that will give you entry into a particular occupation in order to support yourself. In my opinion, that should not be our major concern at the secondary level. We should focus on the intrinsic educational benefits, the noneconomic returns of vocational education that are designed to promote human development at the secondary level.

We cannot control the labor market. Vocational education teachers cannot control the availability of jobs. Vocational education *can* provide students with a sense of personal confidence; can help them become aware of how things work, whether it be a television, a car, or a business; and can help them understand how the family operates. Vocational education can also provide aesthetic experiences. Most people take pleasure in doing a job well. Satisfaction and fulfillment of creative expression is not limited to the traditional arts. One can feel creative when repairing an appliance, designing a piece of furniture, or installing a garage door opener. I get a big kick out of cooking. It makes life richer. The development of leisure skills should be a purpose of vocational education.

Vocational education might also contribute to one's integrity. Craftspersonship should count. There is value in learning how to do something well. I recently heard a teacher in a junior high school metal shop explaining to a student the difference between blaming the equipment and blaming yourself and accepting the responsibility for your own errors. The student, who had been blaming her equipment, began to accept responsibility for the problem. Another kid was trying to temper some metal and the teacher went over and used the task of tempering the metal as a vehicle to get the class to think about how to solve a problem.

Vocational education can teach cooperativeness. Most vocational activities are communal enterprises where one is dependent on other people working on the same project. There is intrinsic pleasure derived from teamwork and collaboration. It's a healthy antidote to obsessive individualism and the

competitive nature of so many of our academic classes which tend to erode the sense of community in a school. You acquire interpersonal skills when you require kids to communicate and negotiate with one another.

Vocational education can also develop a sense of personal altruism. If we don't start developing some communitarian values in this society, we're going to be in trouble. Vocational education projects offer exceptional opportunities to provide real services to the community; obtain visible evidence of accomplishment in the form of improved facilities and satisfied customers; and garner respect and appreciation for the recipients of the services.

In short, vocational education provides much more than training in job-specific skills. Vocational education, like sports or music or the arts, offers students intrinsic benefits and values. These values are seldom spoken of in the reform literature.

Stuewer: You said we must focus on outcomes and then draw concepts from the academic disciplines to help them acquire the necessary skills. Could you explain that a little more?

Silberman: You start with the behavioral outcomes you want to develop and work back to find out what the disciplines have to offer you instead of starting with the disciplines. If you start with the disciplines, you end up with "watered-down" survey courses like social studies. Academic people like to deal with subject matter content where you start with a topic and then choose a certain text to cover the material in a particular area. It's practical and efficient. The ever-increasing specialization of academic courses at the college level is reflected backward into the high school curriculum. Each discipline competes for its own pipeline of students. Economists have a vested interest in having economics taught in the high schools, sociologists want sociology taught, etc. What we have to do is to keep the focus on the development of the students who learn by actually solving real problems that are recognized as practical, and, at the same time, getting them to

understand the concepts and principles involved, from whatever academic discipline is deemed most appropriate to these problems.

McClelland: In what value perspective is vocational education anchored? You mention personal efficacy and altruism. Is that an accurate reflection of your ideas about the value orientation of vocational education?

Silberman: If students have the experience of debugging some technological system, they soon learn how to approach the problem and analyze it or they don't succeed. As they become more successful in solving the problem, they acquire self-efficacy. As they experience the gratitude of persons who benefit from their products and services, they may acquire some of the elements of altruism. Vocational education can help to establish such values.

Turner: You touched on the problem of stereotypical images and how one addresses them. It seems to me the only way of solving this issue is to have people of different backgrounds working in close proximity. It's difficult not to respect someone with whom you're engaged in a project with and it's to your mutual benefit to do so. This problem of overcoming these stereotypes is very important to all types of education.

Silberman: I agree. It has a lot to do with dialogue and language. I think that team teaching can help overcome such stereotypes, but many times the vocational education teachers don't talk to the academic instructors and vice versa. Moreover, often when they do speak, they don't use the same language.

Lewis: Throughout your remarks you mentioned the difference between the goals and the content of vocational education at the secondary level and the purposes or goals and content of vocational education at the postsecondary level. Is this readily perceived and appreciated within the field?

Silberman: No, I don't think so. For example, in California we are getting customized training programs in the community colleges and they are real money makers. Where they used to be concerned with long-term student-centered

preparation, they are moving in the direction of short-term, customized training and even private contracting using unemployment insurance funds to train people who are often not actually in danger of being laid off, thus providing a subsidy to private firms to do the training they usually paid for themselves. The community colleges may be getting into the business of becoming private entrepreneurs and offering courses with little educational value. These short-term programs don't build the values of cooperativeness, responsibility, and adaptability that we were talking about as objectives for secondary vocational education.

OUTSIDERS' PERSPECTIVES ON FOUNDATIONS OF VOCATIONAL EDUCATION

The Study Group members from outside of vocational education were asked to think about and reflect upon five questions: (1) What have you learned about vocational education compared to what information you had when we started? (2) What are the questions you still have? (3) What implications does your knowledge have for the subject matter and content of vocational education? and (4) Based upon your own area of expertise, what do you see as the contribution of your field to the strengthening of vocational education and how do you see that a knowledge of vocational education might contribute to your area? Following are the introductory comments made by each of the "outside" members and excerpts from the resulting discussion among all Study Group members.

Comments by Darrell Lewis, Economics of Education

I tried to focus on the readings and their content as well as the comments of the guest speakers. I have been generally familiar with many of these issues. In many ways, this exercise has been very helpful to me because it has strengthened some of my intuitive perceptions and it has given me significant new impressions and insights. My first and most important observation is the need to better mainstream vocational education into the general education goals and objectives of public schooling. I'm talking about an explicit infusion and a participation in the general goals of public schools. In examining some of

the literature independent of vocational education, I think that vocational education has been short-changed a bit. I would suggest that this is not so much a question of more vocational education courses in general education, but a question of the conversion of vocational education curriculum for general education purposes. Specifically, I've been somewhat surprised there hasn't been more historical collaboration between vocational education and the area most likely to speak to this, social studies. I don't believe, as an example of strategy, that enough deliberate attention has been given to the world of work in the social studies curriculum. Almost all teachers talk about citizenship and social efficacy as the principal outcomes for social studies. Some of them may be disciplinarily biased in terms of social studies for social action.

Second, I was very impressed by the speakers. They are some of the leading individuals in their areas and have thought reflectively about reform in American education today and about priorities. The majority of their comments were on the importance of values, attitudes, and predispositions as compared to skills at the secondary level. That is critical. I've gained a stronger feeling based upon these speakers that vocational education has a unique comparative advantage in experientially based education and in cooperative education. We should examine ways in which this comparative advantage can contribute to the goals and purposes of general education.

Third, there is a real need for understanding vocational education as general education. Does vocational education contribute to dropout prevention in general education? My impression of much of the research in vocational education is that it's focused heavily on effectiveness in employability and relating to society's jobs. It's heavy on the training-evaluation mode. I've been very surprised in my casual "trolling" through the literature that there isn't more attention paid to equity concerns. Dropout prevention is effectiveness in both efficiency and equity dimensions. Does vocational education contribute to employability through general education? It's a different question than employability specific to skills. There needs to be more linkage with this kind of evaluation/assessment research. Does vocational education in general education contribute to school-based achievement? I haven't seen any work done on this issue. I suspect that if what's been said about the experiential and cooperative nature of what students learn and acquire in vocational education programs is true, this should have feedback to general achievement. Alternatively, there is a need to strengthen the general education components of vocational education, especially in mathematics and science. I would say within the

more structured and extended programs in vocational education, there needs to be some mainstreaming of basic education into vocational education instruction.

A fourth point is that there is empirical evidence within the economics of education indicating that the more education one has the more adaptable, flexible, and employable the person will be. I'm not just talking about engineers and college graduates, but basic public school education. I haven't seen much reference to this body of literature in the vocational education research. There is also literature in labor economics and the economics of education indicating that employment in the future will be increasingly in high technology industries, but that most of the jobs will *not* be high technology occupations. I think that attention needs to be given to this by researchers and planners in vocational education. Some of the references look at Japanese models of employer-employee relations, working groups, and the like. They are looking, for example, to the cooperative movement in its classic, generic sense. There needs to be more linkage with business school kinds of discussions and strategic planning. Vocational education needs to examine more carefully how we link preparation in public schools to employability in the future. I don't see much attention to this literature in vocational education.

Last is the issue of stratification. This is a major problem in society and in the schools. I'm surprised at how little serious research has been devoted to this. There is a lot of research relating to this topic by Marxists and through other radical critiques. Most of this is dismissed by vocational education as coming from an ideological perspective, and we, therefore, don't have to deal with it. I'm increasingly impressed, however, with the work in sociology on these questions. Many of these authors are not very complimentary to vocational education. I believe that vocational education has been remiss in not being more responsive. This research has to come from central agencies such as the National Center for Research in Vocational Education. It's expensive because you need longitudinal data, but I urge that more attention be paid to this issue. The strongest political argument that vocational education has made has been based on equity grounds. The efficiency evidence is mixed, but the equity argument is often done on hortative kinds of appeals rather than on strong systematic evidence.

Excerpts from Discussion Following Lewis's Comments

Copa: What does the term "comparative advantage" mean to you?

Lewis: It means you might be able to do a whole bunch of things well, given the peculiar skills, talents, and resources that you have available to you—that you are better equipped and positioned to do this than most others. On the other hand, you may spread yourself too thin. You should specialize and do these new things in areas where your talents are strongest and most unique.

McClelland: Is there a difference between mainstreaming vocational education and integrating vocational and general education?

Lewis: I don't think they are mutually exclusive categories. As a practical matter, you're going to have vocational education courses and compulsory general education. I think there is a case to be made for some of the experiences and skills learned in vocational education courses to be transferred and used in general education. I don't think the answer to your question is an important issue. There needs to be more basic skill development, not vocational education but basic education in vocational education courses and there ought to be more participation of vocational educators in the general goals, purposes, and curriculum of secondary education.

Copa: How does one begin that process?

Lewis: Perhaps one starts by actively participating in decisions made in the schools.

Bjorkquist: Your suggestion in social studies is we do this with social studies folks and we ought not try to go off by ourselves and figure out how to teach mathematics. Rather, we should be in consultation with folks that know mathematics.

Lewis: Yes! My classic example is that I believe that everyone ought to be computer literate before they graduate from the 6th grade. The comparative

advantage for computer-based and computer-assisted instruction and keyboarding is with business education teachers. What's happening is that there is a narrow view on the part of some business education teachers. They believe that they are the only ones equipped to teach computers and, therefore, they are insisting upon exclusive licensure in elementary schools. Both sides have the same goal, but the strategy of one, that they ought to be the only ones to be teaching specific courses in keyboarding, may be counterproductive. On the other hand, business education teachers ought to take the lead in working with the elementary schools.

Bjorkquist: Vocational educators have thought of experiential learning as a side path to what they do, and they recognize that there are some learners whose styles are advantaged by the content and method of vocational education. Do you think it would be dangerous for vocational educators to think of themselves as "methods" people for learning as opposed to teaching a specific body of content?

Lewis: I don't know. I think it could be risky. I'm taking Silberman's comments at face value, and I found my eyes got very wide when I heard him say that. Perhaps the most important thing vocational education is doing in public schools is giving students an experiential learning base and an alternative to some forms of a teaching-learning environment.

Comments by Roger Stuewer, History of Science and Technology

It's quite clear to me that the history of physics illustrates the value of integrating vocational and general education. To use the Cavendish Laboratory as an example, at the turn of the century J. J. Thomson was a brilliant experimental physicist there. He could see how things work, but he was very clumsy with his hands. He essentially relied on Everitt, his laboratory technician, and a close relationship developed between the two of them. They each recognized the contributions of the other. The history of physics is replete with examples of this kind of integration between academic subjects and vocational education specialties furthering an important activity. At the high school level, why

couldn't a high school physics teacher and a vocational education teacher get together and design experiments that would involve both teachers and their students?

I think there is another major characteristic of science and particularly physics. One has to understand that physics, and science in general, is a meritocracy—it's a discipline where the only value is placed upon the individual's ability and the ability to contribute to the discipline. When physics was maturing into a profession, it provided a significant route for those entering the field to transcend the socioeconomic status into which they were born. Faraday, who was the son of a blacksmith in London with almost no formal education, became the most distinguished experimental physicist of the nineteenth century in Britain. The same was true for Rutherford in the twentieth century. The value here is on the craftsperson—the person who can develop his or her skills to the greatest extent possible and in this way transcend all sorts of barriers.

If I look further at Harry Silberman's list of human values engendered by vocational education—aesthetic expression, cooperativeness, integrity, altruism—it seems to me that those are precisely the values that the pursuit of science, and of physics especially, also engender. There is a clear kind of compatibility in achieving desired goals.

The matter of aesthetic expression, even in mundane things such as solving physics problems, produces satisfaction, and physics itself is an aesthetic pursuit just as the arts are. You can't survive in a physics lab without cooperativeness—a spirit of altruism. You work with each other to achieve a common goal. All of these aspects come as a matter of course in a good high school classroom. You never make them explicit, but I think they are part and parcel of the pursuit of science. Also, if you work collaboratively with technical people, you understand problems differently than if you only understand them from a theoretical perspective. A good many people are turned off by science because it becomes abstract right from the beginning. Physics textbooks have become much more theoretical, and questions such as how does a refrigerator work, etc., have been taken out. The practicality, the hands-on experience, has gone by the board. I think there is an opportunity to resurrect some of that to the clear benefit of both vocational education and science education.

Excerpts from Discussion Following Stuewer's Comments

Bjorkquist: Are you saying technology and science have each gone their own way?

Stuewer: That's how it appears.

Bjorkquist: I've heard that technology begets technology and science begets science. Some people have thought of a "lattice" interaction of technology and science that may be breaking down.

Stuewer: The overly theoretical textbooks are exacting a real price. A good many students are being turned off by this theoretical approach. They might otherwise have been stimulated to move into science by a hands-on approach. Educators are recognizing that when you give up the hands-on approach you pay a real price for it in terms of not only education but in attracting people to science as a career.

Turner: I also think you pay a price in terms of demeaning the people who do know how a refrigerator works.

Stuewer: I agree. Every practicing physicist knows the value of the technician. They really do treat one another as colleagues. But if you're not working in a laboratory, and only teaching about it, then stratification can occur—all sorts of negative attitudes can be propagated.

Copa: It seems that secondary education is very content-driven. It does not focus as much on process objectives such as cooperation, integrity, and aesthetics. The instructors even lose sight of these process objectives. I would guess that that happens in the majority of academic programs as well as vocational programs in the public schools.

Stuewer: I think you're right, and I also think there is a growing reform movement going on to change that. For example, a close professional friend at the American Institute of Physics is heading up a major effort to look at the introductory physics course at the college level to see what aspects of the

content should be jettisoned and what should be focused on in terms of bringing to students an appreciation of what constitutes physics today, rather than focusing on inclined planes and whirling balls. The first step is to reform those introductory courses. That has clear implications for teacher preparation. With the very modest preparation that many high school physics teachers have today, they're heavily dependent on a textbook, a set series of topics they feel they've got to go through. And some teachers also have a real fear of teaching science at the high school level. They're thrown into the subject and they're struggling themselves to learn it. Those are not the conditions that promote the kind of thing that is in fact part and parcel of the pursuit of physics.

Copa: It's not only that they're content bound, but the content is a narrow definition of what it could be.

Stuewer: The process is part of the content also. I think that that is a real value of the history of science, in general, because it displays the process and the aesthetic aspects of science. So I would not be unhappy to see much more history of science taught at the secondary level in the United States because I think it's through historical inquiry that you do see these aspects come out.

Wardlow: I think one of the opportunities we have working with people is that in the vocational technical fields we are so directed to solving a problem, so that becomes more of an objective.

Stuewer: It's certainly true that science would not survive without intense competition. Although on the one hand—the double helix is an example—there was extraordinary cooperation in the group at Cambridge, the competitiveness does in fact foster cooperativeness on another scale. It's a play-off, and as I say, examining the way science has been carried out does provide insight into these things.

Comments by Caroline Turner, Sociology of Education

I'd like to say that I am really excited about what this group is trying to do. Part of what I feel needs to be done in education is to break down some of the barriers, and that can happen through curriculum changes and through changes in programs in secondary and postsecondary institutions. When I mention in my classes that education, law, medicine, etc., should be thought of as vocational education programs, there is this horror. I hope that this kind of evolution toward a revolution continues. I have two major concerns: (1) Why haven't we addressed the concerns of outsiders? and (2) What kinds of strategies can be brought about to emphasize vocational education in the mainstream of more discussions?

There are really two tracks in American education. Instead of really integrating, we just sort of put them under the same roof, but in segregated form. I think we need to look at how organizations serve communities, organizations such as schools, and how within the organization you can have a completely tracked and segregated program. I think we need to address these issues.

As a college preparatory student in high school, I was steered away from anything vocational, including typing. Is there still this dichotomy between head and hand curriculum instruction? Are students like myself steered into the academic track because "you are going to college"? The things you can learn in vocational education are really things you should be concerned about. Vocational education in my school was a dumping ground for students who wouldn't be going to college. I think we should address the concern put forward by a woman named Gatell in a book called *The Community College and its Critics*. She talks about curricular stereotyping for women and I'm wondering how this is addressed in vocational education at the secondary level, or can it be? Not only are people tracked into vocational education courses, but they are tracked out of taking courses which would help them, like physics and science, because those are for the advanced placement students.

It's very difficult to cross tracks, as my daughter's experience can attest. I had trouble getting her moved across tracks and I know how the system works. How can these things be facilitated for students instead of the system being a rigid box, where only those who know how to manipulate the boxes can move from one to the other? The questions I'm left with are the following: Is vocational education still a "dumping ground" by

society? I think it still is in general. Are women not encouraged to go into nontraditional fields of study in vocational education? I am sure that they are. Has vocational education been able to keep up with the technological advances in the workplace? Another concern is, should vocational education only reflect the existing workplace or should it improve and transform that workplace for the betterment of society? In other words, does the vocational education teacher see him or herself as a change maker as well as an educator?

Another thing that I discovered in my work at community colleges, but probably the secondary level doesn't work under the same constraints, is that in community college programs, often their funds depended on their number of full-time students. I asked a vocational education teacher in one of these programs if there was any incentive to extend a vocational education student's horizons. In other words, if you found somebody who was really great at auto mechanics, they might be able to be an engineer, using that as a base. Is there any incentive to observe and support that student to go on in their career? And he said, "Well, no. Because you want them in your program." These kinds of linkages are really important. And I've found, too, that how students are looked at is also how the teachers of those students are looked at. If the student is looked at as someone who is not going to achieve, not going to be a leader, then that kind of prestige level transfers to the teacher as well. I think that's something administrators have to deal with if they're going to get the most talented teachers into vocational education fields. And they're needed to make these links between the academic and vocational.

Excerpts from Discussion Following Turner's Comments

McClelland: How can we separate our societal values of career ladders and progress from an individual's perspective? An example that you used was the auto mechanic who should become an engineer. Maybe a good auto mechanic would see some other logical progression in their career which doesn't include engineering?

Turner: That is true, but the person may not know what opportunities exist. If they know the choices, they may not have the money, or know anyone else who has gone to college. I think it's a risk that a teacher takes, to get a kid to take the unknown route. There may be kids who care less about going to

college and want to continue where they are, or they may not be aware of other things they can achieve. I wish there were more opportunities to transfer. We need to let them know what the possibilities are without demeaning their decision should they decide to do something else.

Bjorkquist: It relates to Roger Stuewer's comment that students are going to march to their own drummer. I would also contend that the engineering choice is probably a lot more visible to the auto mechanic student than the choice of becoming an auto diagnostician.

Stuewer: This relates to another question, the critical role of the high school counselor. My general impression is that a good many high school counselors have limited visions themselves and don't have the knowledge to really lay out the range of opportunities for an inquiring student. Maybe that's where some effort should be put.

Copa: You asked the question, Caroline, why is it so hard to cross tracks? Why is it so hard to find space for vocational education within the curriculum of the secondary school? I think stratification is the foundational issue and until we can deal with that kind of question, all other kinds of questions are relatively unimportant. I don't know how to deal with it in a foundational way, and yet not come off defensive. If one were to deal with the stratification question, where would you start? What should we be asking?

Turner: It's some point of evolution versus revolution. Now it's an evolving process and some people are at the head of it and are trying to move in this direction. It seems to be so slow. When you were talking about the counselors, that maybe the counselors didn't have a broad enough horizon, and your points previously about the classroom having examples that are practical and theoretical, I think concentrating more on those will do a lot more to break some of this stratification. We need to get on some common ground and respect one another's vocations. In the classroom, I think, is where it has to happen. With the teachers.

Lewis: When I went to school, we were required to take Shop. The boys were required to take Shop and the girls were required to take Home Economics. But, it was part of the general curriculum of the school. The other thing was that although typing was not required, it was taken by ninety-five percent of the student body. And, we were all required to take Art. The Home Economics teacher was one of the most respected teachers in the whole school. Teachers in the areas I mentioned participated in all the task forces, all the curriculum teams, and all of the governance of the school. Every student participated in these areas of study. They were a part of mainstream education.

Wardlow: How does increased academic requirements for college entrance effect stratification?

Turner: It's a complex question. In some ways it reduced stratification because it put some courses of instruction out of business. On the other hand, it may create stratification earlier than it had in the past. It may limit options earlier in one's life.

McClelland: Are there any theories of stratification that have to do with why people do that? One of the impressions I have is that people stratify because it simplifies a whole lot of problems. If I can put things in nice orderly bins, it makes life simpler.

Lewis: I would hypothesize that there is probably greater socioeconomic status stratification in the academic track, or as much, as there is between academic and vocational.

Turner: Some of Kanter's work in sociology deals with stratification in the workplace and she talks about the reason most managers come from the same socioeconomic status background and the same educational background is that the trust level can be developed immediately—you don't have to have someone with different values to deal with. The idea of bringing somebody into that group that doesn't share those values is threatening and is difficult.

Stuewer: I would suggest that we've got to get into a research team people who are aware of society and culture because we're talking about values; otherwise, we'll talk simply about education as an institution and we'll go round and round. We have to see that there is something to be contributed by the culture: values, attributes, what makes for this kind of society.

Turner: It should be no surprise to us that there is stratification inside the schools. Mr. Silberman said also that we always have to remember that education is only one segment of society, and that we think that education can solve all those other things, but, in fact, we're frequently impotent in the larger scheme of things.

Lewis: Tinkering with changing general comprehensive high schools is not going to address the whole socioeconomic status and mobility question.

Bjorkquist: Schools might not be able to do more than tinker; otherwise, there may be consequences.

Comments by David Noble, American Studies

I believe that a major problem is to find a way of making the social studies and literature relevant to the student's experience. The most successful undergraduate teaching I have participated in was an experimental program about fifteen years ago when a select group of freshmen took several courses which focused on ecology. I taught a survey of United States history which focused on the environment rather than on politics. The course on literature used writings which described the natural landscape. There was a geography course and I think there was one from sociology. The students greatly appreciated the way in which they could bring perspectives from one class to another.

If one could have a core of social studies and literature courses in the high school called ecological perspectives on American society one would have a way of bringing in cultural pluralism by studying the use of resources by a variety of American cultures starting with the American Indians. One could also focus on the role of women in all the

American cultures in the use of resources. This focus would also make changes over time more concrete to the students.

In family studies, students could use their mathematics to study energy use from those foods that are most cost-efficient, to the energy efficiency of cars, public transportation, and housing. They would see why Western Europeans use energy twice as effectively as Americans. These could be group projects which would foster cooperative work habits.

Such a core of ecological perspectives would mean that the relationship of fundamental principles from biology and physics would be more than abstractions as they were related to issues of sustainable agriculture, pollution in both rural and urban environments, the depletion of oil reserves, the problems of atomic waste materials, etc. They should be principles that would become part of courses on history, the family, and the economy. Courses on literature could examine how attitudes toward the environment were expressed differently in the literature written by white women and white men or in the oral traditions of American Indians, Afro-Americans, and Mexican-Americans. Literature could also demonstrate how the various American cultures view the family. Again the issues of energy use could be raised when one considers extended families, nuclear families, and the recent trend toward many individuals living alone.

Since there is a major concern for restoring pride in craftsmanship and a sense of cooperation, a group of courses all sharing an ecological perspective would provide an effective context to encourage students to understand the relevance of craftsmanship and cooperation within an environment of limited resources.

I, like the others, was struck by the emphasis of the speakers on attitudes and values, and the discussion about being culturally literate and how society is a cooperative enterprise. If I were in a position of power to change things, I would focus on the issue of cultural illiteracy. One could bring up other points about cooperation, craftsmanship, the abstract issue of real hands-on learning, etc., but I can't imagine how you could persuade teachers to engage in something like this. Maybe at the high school level there is less institutional defensiveness. So much of our learning is so fragmented. We teach specialties here and there with so little synthesis, and it's not working.

Excerpts from Discussion Following Noble's Comments

Bjorkquist: One of the things that struck me as you talked is that you're very concerned about the context within which a subject is taught. Is that fair?

Noble: As I've said, I think that so much of our learning is fragmented. We teach specialties here and there, with so little synthesis, and it's not working.

Beck: It probably would be easier in elementary school because the teacher does everything and you could have, as you suggest, an ecological perspective study unit and connect it with many disciplines.

Noble: It certainly is something we could get involved in at the local community level with a kind of hands-on study of energy use.

Copa: But you suggest that change is rather utopian?

Noble: Yes, to be able to do something major to control the crisis in society and keep it from proceeding further. As far as I can see, getting a coordinated curriculum in the schools is utopian in itself. Even at the university level, the relationship between political science and economics, history and sociology is practically nonexistent.

Copa: At the high school level, between vocational education and other kinds of departments you begin to see the specialization. The advocacy is within those departments rather than across. The resources are all controlled within them. You have to persuade people to use resources across. The only resources you have are those you can take away from specializations. Darrell Lewis mentioned stratification being a foundational issue. Maybe structure is also. If we don't question structure, then we can do little about integration. By structure, I mean how the institution is organized.

Noble: I think structure reflects specialization. For example, some time ago the University of Minnesota set up a council on group studies and it didn't occur to any of us to talk about anything but distribution of courses. That

you would take a little bit of humanities and a little bit of science. We just took the specializations for granted.

Lewis: The fundamental reason for attention to specializations is that they work. You address issues and solve problems because you are specialized in a particular area. Integration of content has also to show that it works. There has to be some positive and tangible outcome from the integration. For example, there is literature on the detrimental effects of pull-out and special instructional activities for some at-risk children. On the other hand, some of these students do significantly better in mainstreamed instructional settings. That is one part. The other is the equity question and these are no less problematic. Motivation, socialization, and subsequent community adjustment are all issues here. Some research indicates success in these domains, as well as in self-concept and personal growth, when students are mainstreamed and not stereotyped as special. Perhaps vocational education could learn something about the benefits and processes of integration by a closer examination of strategies now being implemented in special education with its mainstreaming initiative.

Copa: It seems that we and others are not sure if vocational education is part of regular education or if it is more like special education.

Lewis: And, we and others keep going back and forth between what it is. Special education is moving on an integration initiative. Integration is one of the two or three highest priorities, both in schools and community.

Beck: The analogy between special education and vocational education is troubling to me. Suppose we got rid of vocational education? What would we have lost? The assumption is that if you got rid of vocational education, you would have the kids in an integrated class. I wonder what do you lose when you do that? What do we lose in our economy? For individual growth, when we have mainstreamed? That troubles me. I think that it is the assumption that people are making, including some of us in vocational education. Increasingly it is being suggested that if we had only technical education, where people would have more mathematics, more general

education, then that's the way to go. With this position, we're not concerned about others because they're the dummies. That is an assumption I would want to question. What have you lost? Even with the term, "vocational-technical education," you begin to turn away from vocational. What are you missing when you don't wish to talk about students or workers whom you are beginning to think of as your "poor" relations?

McClelland: I'm saying the obvious, but when we think about gains and losses, what these are is based on some set of values of what's good. It seems to me that our society is driven very much by individualism, by productivity, and by materialism. So when we think about what's being given up and what's being gained it's obviously going to be anchored in some kind of values, no doubt upper middle-class values. We who are middle-class are the ones who are doing the research and reporting back to others. We have to ask ourselves this question.

Comments by Robert Beck, History and Philosophy of Education

As I comment on vocational education, the reading that could be expected from me would be a reference to John Dewey. I think that Dewey's contribution is considerable, yet it's on a very special subject. It's on social class distinctions. As he pointed out quite clearly, about the time of the first World War, we tended to think dualistically, not only of mind and body, but also of upper-class and lower-class, brain and hand. And he carried on that thought into education generally; no distinction ought to be made between method and subject matter. The kind of method you used made a difference in the kind of subject matter you were teaching. I suggest that one could profitably read Dewey on this point. But, on vocational education, beyond pointing out the fact that conventionally we have decided that working with one's hands is of lesser importance than working with one's mind, that theory is more important than practice, Dewey didn't know about vocations, about preparations for them, and I don't think his writing on these things is significant. Anyway, I'm not going to refer much to John Dewey.

It isn't enough to understand that you cannot divorce mind and body, or hand and brain, or theory and practice. You have to go a step further, and say to yourself, well if you don't make this distinction, if you think it's a very unrealistic distinction, then what wouldn't you do? I don't think philosophers have done this.

Just speaking then for myself, as a person who is interested both in history and philosophy, I think it would do well for us to do some research on the issues that have already been spoken of. What are the values we have when we speak of status? What are the attitudes affecting our ideas about work, definitions of work, product, service? What do we mean by these terms and of whom are we talking? If we talk about service occupations, what are we saying about our economy, our way of life, about our perceptions of people? How do we prepare people for their lives as citizens, producers, and consumers? I have no answers except very personal ones.

We simply find ourselves in a position where we have turned our back on these issues. We don't find people who have a philosophical interest in talking about work. We have people talking about workers, for example, suggesting that you can teach in high school social studies about unions. But we never talk about unions or unionization, or working conditions, or labor, or the difference between labor and management (if there is one) in social studies classes. These things just aren't going to come out of social studies.

I do feel with work you have a central issue. Work and the role of work, I think, is the central part of the study of society and culture. Then you can talk about social stratification and socioeconomic status and other things through it. A lot of human time and effort goes into work. When Hume, in the seventeenth century, said, "I'm going to give up philosophy and I'm going to play billiards," people laughed. What he meant was you'd get more out of a discussion of causality on the billiard table than you could get in our discussions in philosophy classes. The answers aren't going to come out of social studies. Work and the role of work is the central part of society and culture.

Excerpts from Discussion Following Beck's Comments

Stuewer: It's interesting that you're mentioning John Dewey and the lessons we shouldn't take from him and the devaluation of working with your hands as compared with working with your mind. I want to respond to one philosophical issue you raised. Dichotomous thinking seems to be very much a part of the Western intellectual tradition, and particularly the Western scientific tradition. The question arises as to the extent of which such dichotomous thinking is built into our language. To what extent is this thinking "wired into our brain" as a result of our language. One looks at science in China. It has a different cast than science coming out of Greece.

McClelland: The question I would ask is is it linguistic, or is it our view of power?

Stuewer: A historian-philosopher friend of mine suggests that it is linguistic in this case; in terms of our view of power, I don't think that was what he was driving at. His principal interest was how one teaches modern physics to people who live in a push-pull universe.

Bjorkquist: I visited a professor from Illinois and he said that one of his assignments was to develop a curriculum for teaching the ethics of work at the secondary school level. One of the things that makes my hair stand on end is what I perceived to be the intention of those who asked for that kind of course. Is there an "ethic of work" that everyone should learn?

Copa: If you look at the goals for secondary education in Minnesota, there is a nice abstract list of statements and you would say well, that is what people need to make a living. But how does it get so messed up from that list to what you find in the classroom. It's far removed from what it takes to make a citizen, to make a living, which are some of the goals you would see in that list. What happens in that process? Why can't we translate those abstract goals which look appropriate?

Bjorkquist: There is a breakdown between the development of curriculum, the instructional objectives, and the goal statements.

Copa: One of the things you [Beck] touched upon was the concept of parity of esteem between liberal education and vocational education. I'd like you to talk a little about how vocational education might work like that.

Beck: I would say there is a cheap and a not so cheap approach to esteem. The cheap approach would be let's push "skilled hand-on" experience. Let's have more "technical" education. That will give you more status because you will have more chemistry, more physics, more mathematics, more history. It will be more intellectual, academic, and therefore higher status. But you don't have to go that way at all. You shouldn't have to dream up reasons for how do we honor this; it ought to be natural that you accept this as worthwhile.

Bjorkquist: One of the roots you can trace in vocational education, which probably doesn't help its image, is that it has frequently been used as reform education. Education of the ne'er do well or those separated from society such as those in prison or jail. Today's version would be some sort of special needs education and the use of vocational education to accomplish that. Vocational education is often seen as a way of correcting economic problems. Those who can't support themselves obviously ought to be in a vocational education program. I recently read a book called *The Age of the Smart Machine*. It is a discussion of how we have distinguished types of work depending on the extent to which the worker has had to give his or her body to the work. And those forms of work requiring the giving of the body have and are most often held in lower status—the jobs ranging from those where you bust your knuckles to those where you breathe asbestos, or develop sarcosis, or endanger your eyes or ears, or where you fall off scaffolding, and so forth. These have been considered lower forms of work compared to those where you don't give your body as much. Although you could make a pretty good case for office workers getting ulcers, but, of course, that is a higher status physical ailment.

INSIDERS' PERSPECTIVES ON FOUNDATIONS OF VOCATIONAL EDUCATION

The Study Group members from the field of vocational education were next asked to use the Study Group discussions and their own experiences to comment on what kinds of student outcomes they see as being important for students of vocational education. Second, what relationship do they see between the academic disciplines and vocational education in view of these outcomes. Third, they were asked to comment on what implications the above relationship has for the content of vocational education, the curricular structure, and the instructional process.

Comments by Jerry McClelland, Home Economics Education

What I have shared with you is an outline for various ways of thinking about curriculum and instructional processes in vocational education (see Exhibit 1). In the technical domain, and I perceive that the technical persuasion dominates our society and all of our schooling, the rationality would be in the flavor of rules that would be derived from empirical science which would explain cause and effect. The intent would be to control the environment and we also translate that to people in educational settings. The technical action that people might take would be to produce an object or to reach a goal, the emphasis being on means. When we have been talking about thinking and doing and mind and hand here, I interpret that as the mind being technical rationality and the hand being in the action domain. That's because I assume that many in our culture and those engaged in education are more caught in the technical domain as opposed to other domains. One of the flaws in setting up this kind of a matrix is the suggestion that rationality and action can be bifurcated and I don't believe that it is and it should not be looked at in that way. I'll come back and illustrate what kinds of questions regarding how vocational education might go with the technical domain.

The hermeneutic or interpretive domain has a rationality of interaction among individuals to achieve an intersubjective agreement on meanings and norms of conduct, and we can see this in any kind of a social grouping. I think of this more in terms of family, educational settings, and work settings. It is clear that some individuals have more power to influence meaning than others. The action that individuals might take in this

interpretative domain would be seeking the understanding of meanings, goals, values, and intentions. But we need to come to an agreement about what rules are appropriate.

The last domain I have entitled emancipative. The rationality would be to uncover a relationship among norms, meanings, and power, and it would have to be hooked to an historical and a social context. The intent would be to discover the domination within social relationships and the understanding of self. The action would be to uncover these contradictions and resolve them in morally defensible ways. American education and vocational education have not focused much on interpretative and emancipative rationality. We don't know much about it.

I would illustrate these domains with the kinds of questions that secondary students might engage in or that teachers might engage them in. An example in the technical area might be what kind of jobs can I prepare for, if we were thinking about a general preparation for work? If it were at a specific skills level, one might ask how can I diagnose and repair automobiles? At the interpretative domain, we might ask what is the meaning of work? In the emancipative domain, we might ask why some jobs confer more status than others? For me, these kinds of questions help illustrate the difference in the concerns of these three domains. If we were looking at foundational questions, we would want to consider what kinds of actions we desire. We might have students who would have a wider array of choices regarding work, and they might be better informed and might even change their work context. In vocational education, we don't talk much about this; however, youngsters who have asked not only technical, but interpretative and emancipative questions about work might be able to act more on their working conditions and on the kind of work they do. I would see the emancipative domain as a means of working on inequities.

Exhibit 1

A Framework for Thinking About the Content of Vocational Education

Domain	Rationality	Action
Technical	Rulers derived from empirical science which explains in terms of cause and effect; intent is to control.	Produce an object or reach a goal; emphasis on means.
Hermeneutic or Interpretive	Interaction among persons to reach intersubjective agreement on meanings and norms of conduct.	Seek understanding of meanings, goals, values, and intentions; agreement on rules about what is appropriate.
Emancipative	Uncover the relationship among norms, meaning, and power in an historical and social context which fosters domination in social relationships and self-misunderstanding.	Uncover domination, conflicts, contradictions, and resolve them in morally defensible ways.

Note: These ideas are drawn from Marjorie Brown's works: *What is Home Economics Education?* and Volume 1 of *Philosophical Studies of Home Economics in the United States.*

Excerpts from Discussion Following McClelland's Comments

Bjorkquist: One of the feelings I've gotten about vocational education is that there has been an expectation that since we grow up in an atmosphere where work is occurring, it does not have to be taught deliberately. That is becoming increasingly untrue. What young people can observe about work today is very limited and it has always been superficial. When you talk about the meaning of work, it might be something very different from the physical action of labor. And today, people can't even observe that; the workers they see are teachers, mail carriers, police officers, etc.

Beck: If you start with conflict theory, you think you honor work but you don't. You assign work to the lower class and you have the upper and middle classes becoming the managers, etc. Work becomes undesirable and something you want to escape from. It reinforces the same kind of mischievous view of work and labor and productivity that we have always had in this dichotomous way of looking at things.

Lewis: Part of the problem we're describing is the legacy of the '60s and '70s. I participated in some of the curriculum reforms at that time and there was a strong concern about choice on the part of the students. The goals and purposes of education were seen to be facilitating self-realization. The work ethic and the world of work became pejorative terms. There is a major decline in the value of that perspective for general education and some of that has carried over into vocational education.

Copa: If these kinds of actions represent various levels of functional address of a topic, we don't get very far down the list in education today. I visited with my son's mathematics teacher the other day and it was clear to me that calculus class was at the top of the hierarchy in high school. It's clearly a technical area and there is nothing concerning values at all. But that teacher felt he was at the apex of what good education was and where the "good" students were in the school. Secondary education doesn't seem to be about meanings and uncovering conflict and domination. It epitomizes what we

have noted previously about not being able to figure out how to get from goals to what is valued. One of the questions I'd like to raise is how do you approach this situation in a way that doesn't just "tee" academic educators off?

McClelland: I think we have to move from the technical to the more interpretative view. It seems that what's happening around this table is an attempt to seek some sort of interaction among the meaning and goals of vocational education as opposed to the academic, dualistic, either/or approach. What do these norms mean in terms of domination and power? Why is it so hard to get from these abstract goals to the classroom? How do we define what our purposes are? If we can't agree on the purposes, is it because there is too much conflict?

Wardlow: As you move from the technical domain to the emancipative, you have moved into more and more dangerous territory. My sense is to move to the latter level of understanding and try to resolve conflicts and contradictions and become an advocate, that is when you understand the issues best.

McClelland: Dangerous because?

Wardlow: In terms of opening yourself to criticism. Breaking the norm of what is expected in the field of education. Taking responsibility and developing trust and having the confidence to move ahead.

McClelland: I agree that we keep reproducing ourselves. This university reproduces itself so that those in the next decade will behave in similar ways. Equally, we reproduce downward. Folks who become socialized in secondary schools and colleges go back to secondary schools and reproduce the university at the high school level. I think the university is best in the technical domain and we produce students who will become professionals in the technical domain. But I'm aware the world doesn't always move this way.

Lewis: Maybe one of the problems we have in education is that we're not as good in the technical areas as we believe we are. One of the things I see in the reform movement is a movement back to those kinds of things we believe we are best at doing.

Beck: We think of school as something you pursue so you don't have to go to work. You get the notion that an educated person is a person of the book who doesn't have to work.

Bjorkquist: Also the nature of work has changed dramatically. It's not hands-on work anymore; it's service work. And, increasingly, the rewards for work have changed. The way in which we address preparation for the world of work in schools is necessarily going to have to change as well. It's not a vocational education question but a general education question in the most fundamental sense.

McClelland: But many of our youth are employed from age 16 on. One of the things I'm learning about how young people see work is that it is viewed as having primarily extrinsic value and that is to secure finances. It's not the work. What they are experiencing is a trade for money. They are having exposure and experience with work, but it's very narrow and instrumental.

Bjorkquist: There is a debate about fast-food work. There are claims that students report other kinds of benefits such as it helps them in their studies because they're able to relate some things to some realities or in developing better social skills.

Lewis: That is precisely the point Silberman made in his talk, the concepts of values and cooperation.

Comments by David Bjorkquist, Industrial Education

It seems to me that we have difficulty identifying what vocational education is. Part of the reason for this is that we have multiple descriptions of it. We have an institution of vocational education essentially established by the federal legislation—Vocational Education. We also have a more generic form of vocational education which extends beyond federal legislation—vocational education with small letters. Vocational Education is getting further and further away from vocational education, and a consequence is that the idea of vocation gets changed. I consider the concept of vocation to be very honorable and longstanding and someone's vocation is something that should be highly valued. But what has happened with the federal legislation is that we have created and described something else. Since the time of the first federally mandated legislation and today, the gulf between what has been created and described has widened. As vocational educators, we need to be more concerned with general education and we need to entice more people into dealing with the more generic issues of what vocational education is and should be.

My second point is that, increasingly, to describe vocational education by levels at which it is taught is not as useful as a description of vocational education as pre-employment and post-employment. This distinction, the things people do before beginning their employment and the things they do afterwards, is a useful one. Post-employment vocational education is becoming a bigger piece of the pie as far as preparation for work is concerned. Evidence indicates that employers' expenditures for training is equal to those for all of higher education in the United States. That gives you an idea of the magnitude. We need to pay more attention to the education that people receive after they begin their employment. If you look at the world of work, it is evident that the work skills of many people are no longer very durable. In many occupations, people who haven't received some form of retraining within two years are out of touch.

We need to raise our consciousness about the modern workplace. We are now part of a world economy. Workers in the United States are not part of a national system any longer but part of an international economy. There is plenty of evidence of that already. But there are issues arising from this that are going to strike very near and dear to the hearts and pocketbooks of people in the United States. If you accept the idea that there are limits to natural resources, you then have to accept that there is going to be some leveling in the distribution of the benefits of those resources as we become more and more a world

economy. Data is being beamed by satellite to Jamaica overnight, keypunched by workers receiving minimum wages, then beamed back the next morning to the United States. The cost of transmission is insignificant compared to the cost of the work.

One of the problems with vocational education is that we have placed a great deal of value on hands-on forms of education and we talk about it as a method of learning. You can learn principles of mathematics and science through vocational subjects, but one of the coming problems for us is that the workplace is becoming less and less hands-on. More and more workers are dealing with representations of reality rather than reality itself. They are no longer touching, feeling, or smelling the product, but instead are viewing icons on a screen which represent processes. If vocational education in the pre-employment sense is going to deal with the realities of the workplace, it's going to have to be realistic about this change. Much of the value of the hands-on learning we've talked about may be inconsistent with what is going on in the workplace. As vocational educators, we need to be better informed about the whole topic of work and what work is and the kinds of things that are occurring.

I suggest that there are some things that we need to be able to teach people about work, about the evolution of work values. The most serious issue of all is how to weigh current issues about work and recognize faults in the conditions of work, how to become advocates for the correction of injustices. That requires a very high understanding of what work is and what is happening to it so we don't go off on some sort of "hare-brained" direction without solid understanding of what we're doing. If there was ever a time when we should be concerned about what is happening to work, it's now because the changes are so rapid and dramatic. I think we need to be more and more advocates of dealing with what are and what can become injustices in the workplace.

One of the major issues has to do with the introduction of increasingly higher forms of automation and whether or not that is used to control workers in that the power is placed in a relatively small number of people who control individual workers, or if those workers are informed by that technology and have the opportunity to make more and more decisions to the benefit of the organization and the productive function. Are workers going to be treated as extensions of machines or are they going to be treated as human beings within the work setting?

Discussion Following Bjorkquist's Comments

Beck: Another issue area would be the notion of being accountable in the way organizations operate as they get "lean and mean" and are pressing for accountability.

Bjorkquist: Yes, it's the same issue. You create more intense forms of accountability because you have more information generated and one of the questions is what are you going to do with all that information? One of the best examples is AT&T. They monitor their directory assistance operators and if there are sufficient breaks in whatever they do that exceed eleven seconds, they're out the door. That's an extreme form of control by using the technology that is available. A better alternative would be for operators and supervisors to get together and decide how to provide better service and to decide what the information we need to do that is.

Lewis: The paradox in what you're saying is that the infusion of technology into the workplace has required fewer skills for most workers. It took quite a bit of skill to run a manual cash register, but now it takes very little skill to run the can of corn across the scanner.

Beck: For example, the issue you raised about vocational education being less hands-on. That begins to erode a whole set of arguments that have been used about vocational education in the past and why it needs to be there.

McClelland: But there is an open question about whether or not we want to skip this concrete experience with products or services and just go with the representational level. Perhaps that's effective or perhaps people need to have some concrete experiences with these products before they go to the representational. Would you agree?

Bjorkquist: Well, we have to deal with it. Should the person operating the scanner be taught how to run a manual cash register? What would be the purpose?

McClelland: Are we better off not to automate? I hear international students from lesser developed countries talk about intentional choices not to automate. It's okay to mend the streets by hand shovels or whatever because it does provide legitimate, dignified employment. Here we often look first to the question of profit.

Comments by George Wardlow, Agricultural Education

I will parallel agricultural education with vocational education in some of my remarks. I will not discuss much of what the content of agricultural education has been because most of this group can already identify it. To do so would not be a prudent use of our time. Rather, I'd like to address issues which are being raised within agricultural education.

The need for production agriculture employees or agriculture producers has dropped from a high of about eighty percent of the workforce in the mid-1800s to as low as two percent of the workforce today. That's a prime example, I believe, of where technology has replaced the need for labor. And so in the agricultural industry, the labor force in agriculture has moved from production to agribusiness, processing products, distribution, and so forth. Estimates by the United States Department of Agriculture place the percent of the workforce employed in the agricultural industry in the larger sense at something around twenty percent today.

Now vocational education, particularly agricultural education, has moved from the production end of it to the business end. Agriculture really is a struggling field in vocational education. I guess I've been having some real philosophical problems about what vocational education is and ought to be and what agricultural education is and ought to be. Yesterday I called my old high school agriculture teacher who's teaching in Oklahoma now. I was asking him about his program. He teaches in a small school in an economically depressed rural area. There are a lot of native American Indians in the area. There are about two hundred and seventy students in the high school and he said he had seventy-five in vocational agriculture. I interrupted him late in class when I called him. I asked him about the class and he said he had an honors class and that all the honors students in the high school were in this class. He said things were really going well and

that he was doing some different things with this group. In fact, he said that enrollment in agriculture was increasing. So I asked him about what he was doing. He told me that basically he was doing the same thing he had done ten or fifteen years ago when I knew him as a teacher in Missouri. I remember the strength of his program was not the "content" of agriculture and it wasn't the "content" of vocational education. He used the vocational and agricultural areas as a "context" to teach general education. He was quite effective at it. He had already shifted from agriculture's content to agriculture's context for general education or in some respects "academic" education. The content of agriculture I would describe as being the technical areas, the hard sciences, the business and economics of agriculture as an industry. The general education I remember him teaching included human relations and leadership, social science areas, and really, thinking skills.

To continue this point, about three years ago the United States Department of Agriculture and the United States Department of Education jointly commissioned a study by the National Academy of Sciences to do a study of agricultural education in this country. They spent three years in the process and they released their report about three months ago, entitled "Understanding Agriculture." It suggests that agricultural education in this country first of all is needed and is necessary; it is an important part of vocational education which is also needed. It suggests that agricultural education ought to be viewed as two separate kinds of programs. The first is education *in* agriculture, which is specialized. It emphasizes science and technology and business in agriculture. And it should be offered for the relatively few who wish to pursue agriculture as a career, either immediately after high school or after some additional training in postsecondary institutions. But it should be specific to agriculture as a career. Then they recommend that there ought to be an education *about* agriculture offered to every student in the public school system. And that ought to pervade the K-12 system. Here agriculture ought to be taught as liberal subject matter because of its importance, its historical importance in this society, and because of its economic importance.

I've talked about student outcomes in terms of content while moving toward agricultural vocational education as context in the present day. I think some implications include how agriculture or vocational education can provide this context for all students. There are still many, many students in the rural areas who have an understanding of agriculture. There are many students in rural and urban settings who have an understanding of work. And, from our understanding of the research in cognition, for

example, we know that for a person to become really expert in any area, whether that be a liberal area, a technical area, or whatever, they have to have a background first of all. It seems to make sense to me that in our schools we ought to take advantage of what students already know and what they learn outside of the school. And, if students are very familiar with agriculture, or whatever industry that they are most familiar with, we could use that to the advantage of the student and the educational system to provide a context for learning about other things. If students in a certain suburb of the Minneapolis/St. Paul area as a group have a good understanding of, for example, the auto industry, it's because they've lived with that, they've grown up with that. Why couldn't that provide some of the context, at least part of the context, for the whole educational system? Students who live in small rural areas, in rural Minnesota, who have grown up with agriculture as an example, who know agriculture. Why couldn't that provide a context for the rest of their education?

Excerpts from Discussion Following Wardlow's Comments

McClelland: You indicate the possibility of teaching science through agriculture and others have mentioned similar possibilities. I have some concerns about that. I don't think we want to keep vocational education and general education separate, but I'm concerned that both the science and the vocational education get distorted in the process of putting them together. We in home economics say we're teaching science, but it's poor chemistry or whatever if it is taught only in the context of food or textiles. It makes me uneasy because we are getting poor science and poor home economics education because we teach only scientific applications and don't focus on the family and the problems of the family. It's poor science and poor vocational education.

Stuewer: I'm struck by your comment that we don't teach the best of either one. I see that very clearly in my own field. There were not very many professional historians of physics around until a few years ago. Whatever history of physics that was taught was taught by physicists who missed almost all of the interesting questions. Now there are historians of physics, and when you talk to people in physics departments they say, "Gee, that's interesting,

I never knew such and such." There is an intellectual dialogue created that was absent before.

What struck me about George Wardlow's comments is that we have a balloon model operating here. That is to say, physics education wants to balloon out and permeate all education. Agriculture wants the same thing; mathematics and whatever else as well. Even historians of physics wouldn't mind seeing a lot more history of physics taught at the high school level. So all of us want to balloon out all over the place. Well, how do you do that? You have to interfere constructively and figure out ways in which agriculture fits into the general curriculum. You have to have ways to create a really constructive wedding along the lines of the example I gave, where some really interesting intellectual questions emerge based upon solid knowledge of two or more fields.

Wardlow: I think the federal vocational education legislation, starting with the Smith Hughes Act, has unfairly segregated vocational education from the rest of education. And I think that was a mistake. If we have the best interests of the students in mind and the science teacher could teach the scientific part of agriculture and the history teacher could teach the historical impact of agriculture, we might not need the agriculture teacher.

McClelland: But that's an additive model. That's a mechanistic model. It says, "We'll add up these pieces, no matter where they are taught, and we will have agricultural education." I shouldn't try to argue what agricultural education is, but my sense is that that's not the heart of the field. I think that whether it's science or mathematics or vocational education or whatever, to use an additive model that says that all these little pieces will be added up and somehow the student . . .

Wardlow: That's the content of agriculture. But I said earlier that that's not the strength of what agriculture or even vocational education has been the last few years. The actual strength uses the content as a context to offer the "real" content of vocational education for many students which, in my opinion, is liberal education. A group of students who don't get into the

social sciences, the liberal areas, human relations, speech, or communications, can get some of this learning in the context of agriculture.

McClelland: That may be a good argument for agricultural education. I would not accept that as a good argument for home economics education. Home economics education should and does have its own special content that is integrated with other kinds of content. But I don't see its main contribution as being context for some other kind of learning.

Copa: I think you can make the educational "context" case for all of vocational education, in some respect. There is specific content with each of the areas. But in a larger sense, all vocational education provides a context for teaching a lot of other things that are fairly abstract and are not definable by content areas, like history and mathematics. The present school system operates on a content or subject matter centered kind of approach. We define the whole school in terms of subject matter areas. If we were to overhaul the whole system, we'd start with the question, "What do students need to know? What do students need to learn?" My guess is that we wouldn't come away with just subject matter areas. So the question is, "How do you teach these other things?" Do you teach them within subject matter areas or do you provide some kinds of experiences or classes that go well beyond the separate subject matter areas. One approach would be to use the subject matter areas to provide a context for other, additional learning. So, I think you can make the case for both content and context approaches. It may be a mistake to provide only one approach.

Wardlow: Maybe it's time to ask the restructuring question for the whole secondary school, that we should go beyond subject matter as a way to divide up the school. It's time to revitalize and restructure the whole school.

Copa: That's an issue that our Minnesota legislature is facing this year. We have got major educational reports calling for "more requirements." And we've got superintendents saying, "We can't fit it. It doesn't fit students." And so someplace along the line you have to sort of say, "In order to fix this system, we have to scrap it."

Wardlow: Well, the structure of the school hasn't been changed in four hundred years.

Copa: And some of the things we want to fix we can't do by tinkering.

Lewis: All of this can drive you to the conclusion that some form of competency-based evaluation of what students learn is in the offing.

Copa: Jerry McClelland noted that by combining home economics and science, there is distortion in both home economics and science, but maybe we have to ask the question. Maybe that distortion is what should be. Maybe science is wrong. Or maybe home economics is wrong. That there is something new, that there is a new putting together of things that represents what we ought to have and that's not a distortion. Maybe the distortions are the ideal way.

Bjorkquist: I think that educators in the field of agriculture must have difficulty in clearly identifying what their role is and what they teach about because the concept of agriculture in this day and age is one that is very confusing. For one thing, there is a romantic ideal of what agriculture is, maybe best illustrated by the "back to the land" movement of a few years ago which is largely a romanticized escape kind of a thing. Then you mentioned the economy of small towns and what the role of the person who's the professional in the field of agriculture is in preserving that small town way of life. And then there's the technical content of agriculture which is another choice that you could make in terms of what you teach. And agriculture as a way of life. A family way of life. A small business enterprise is another dimension. What it illustrates to me is that there might well be confusion of what is to be taught in agriculture. And I suspect that it probably is true in most other vocational fields as well. There's only a different set of issues.

Copa: One of the things that struck me is when George Wardlow talked about education *about* agriculture and education *in* agriculture, which is more stereotypical vocational education, was the possibility of also education

through agriculture. That's what his former vocational agriculture teacher was doing.

Wardlow: I think the strength of vocational education in the present system is education *through* the vocational fields. But that's tough to defend.

Bjorkquist: There aren't very many people that would put vocational education at the hub of the education wheel.

Comments by George Copa, Vocational Education

As I thought about what I might say, I started with the idea that we need to think about what an educated person is like before we begin to think about outcomes for vocational education. R. S. Peters is a scholar who has thought and written about this and suggests several criteria for an educated person which are very appealing to me. First, an educated person must be capable of pursuing an activity such as science, cooking, or typing for what there is in it as distinct from what it may lead to or bring about. They are able to delight in such things for their own sake. This criteria would suggest a need to examine the nature of the activity being taught. Is it possible for learners to enjoy the activity for what it is at present, not for some future use? Second, an educated person, besides being skilled, must possess some body of knowledge and some conceptual scheme to raise their thinking above a collection of disjointed facts, competencies, etc. They must have some understanding of the "why" of things and without this understanding, the learner is likely to rely on "rules of thumb," having difficulty in resolving exceptional and novel situations. Third, an educated person cannot be narrowly specialized. The person must be able to see a connection in their activities to a coherent pattern of life. According to Peters, we must use the phrase "trained in" or "trained for" when we talk about only utilitarian or specialized pursuits. We do not talk about a person being educated "in" or "for" or "at" anything in particular. This does not mean that an educated person must not be trained in something. It only rules out the possibility of their being just "trained." Fourth, an educated person's knowledge and understanding must permeate their thinking or looking at things. It must transform their total outlook. Their outlook requires an attitude of commitment to the value of knowledge and the consistency between thought and action and an attitude of caring about the standards used to decide what is known. To

Peters, to be educated is not to have arrived, it is to travel with a different view. What is required is not feverish preparation for something that lies ahead, but to work with precision, passion, and taste at worthwhile things that lie at hand.

These ideas give me a richer concept of being educated than to talk about so many hours of mathematics and so many hours of vocational education. One of the kinds of problems I see right now is that we are mired in thinking about excellence and quality in education in terms of courses and "seat time" and I feel we need to raise our sights and really think about what an educated person would be like first.

From attention to the characteristics of an educated person, I'd like to shift to dealing with the purpose of vocational education. As I think about it at this time, vocational education means education that is directed toward vocational development. There are other areas of development such as social development, personal development, and so forth, and these areas interact. Vocational development means the lifelong processes that focus on developing the capacity for vocational responsibilities which are responsibilities all students must undertake, not just a particular group of students. I don't believe that vocational education is something that happens to only a limited group of students. By vocational responsibilities, I mean the expectation for accomplishment in social and economic goals in which individuals take responsibility to provide services and produce products which are valuable to them and others. I'm not limiting vocational responsibilities to any particular kind of work and, in fact, I want to look beyond our traditional notion of paid employment as work. So I would include work and family kinds of responsibilities as an important part of vocational responsibilities.

Vocational education also takes place in a variety of settings, a good deal of it within the family and more and more so in work and community settings. Another point is that the degree of directedness of an educational experience toward vocational responsibilities can vary from very general to very specific. To some degree, then, all education is vocational education. For some educational experiences, however, the directedness toward preparation for work responsibilities is much more central and specific. That is where I would place vocational education as we are talking about it. How is vocational education different from the rest of education? In its directedness toward a particular area of development—vocational development. The content of vocational education as learning enhances the vocational aspects of human development. Finally,

I see the primary purpose of vocational education as increasing student options and effectiveness in work and family responsibilities.

From this general notion of the purpose of vocational education, I would suggest the following student outcomes as the focus of vocational education, particularly in a K-12 school context:

1. To build a sense of confidence, caring, and commitment to work and family responsibilities. "I can do something. I feel good about myself. I know who I am. I have a vision of where I'm going and a place to start" would be the expressions of young people who had a sense of confidence, caring, and commitment to vocational responsibilities.

2. To see the meaning of and transform academic knowledge so that it is useful in those responsibilities and also to question the validity and limits of academic knowledge. To know that academic knowledge is not the only place to look to resolve problems in work and family life.

3. To think through problems encountered in work and family responsibilities. To understand the process of studying problems, identifying and using sources of relevant and necessary knowledge, learning to learn, making decisions, seeking consequences, being "data hungry." Having these kinds of perspectives and demanding rigor in arguments and persuasion. Making and keeping commitments.

4. To learn technical and professional skills and techniques. This is where we have put most of our emphasis in the past.

5. To explore work and family responsibilities, that is to search for "what I can do, who I am." To become aware and examine what's out there in familiar and unfamiliar settings. To scrutinize for "taste" and for safe and caring settings.

6. To try out work and family responsibilities and to experience them.

7. To learn to work together in work and family settings, resolving problems and tensions, meeting deadlines, and appreciating individual differences. Learning to lead and to follow.

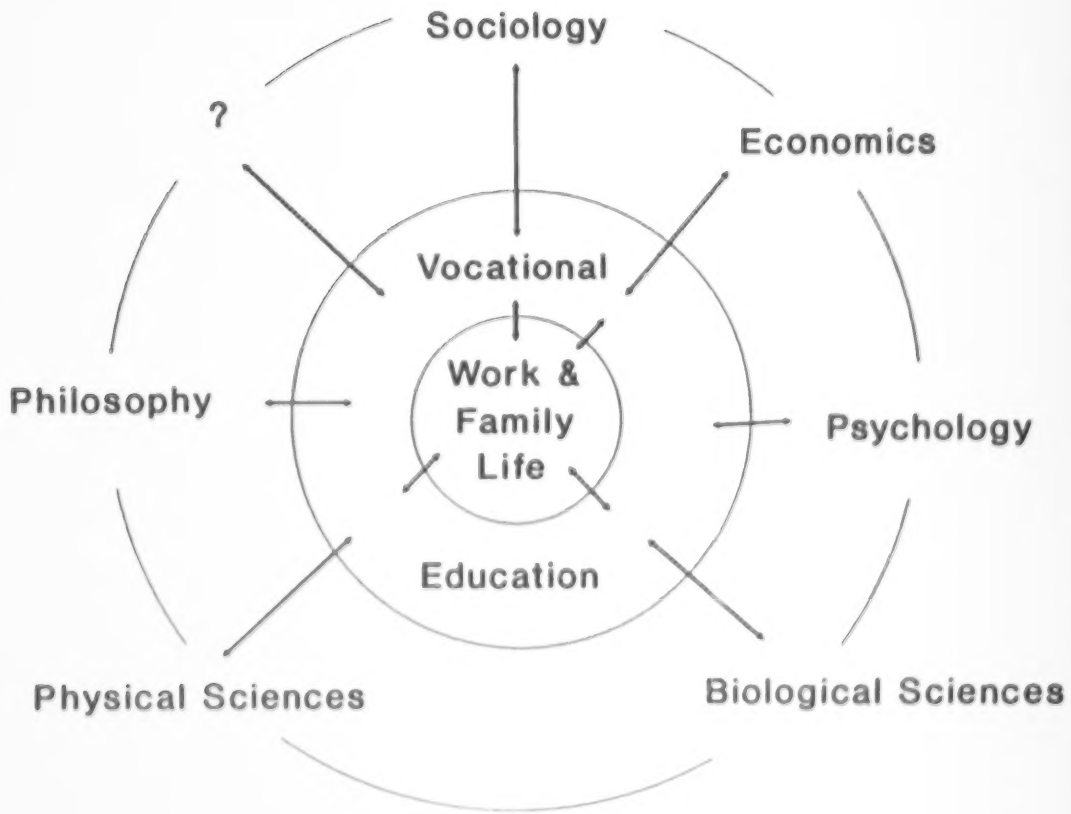
8. To express oneself through work and family.

9. To extend and connect ourselves to community, evaluating needed services and relating to others. Developing areas of fair exchange and coming to understand what quality means.

10. To examine the moral aspects of work and family responsibilities to self, to others in the work and family settings, to the community, and to the larger world. This would be a start on thinking about what would we want students to have when they leave high school.

We need to ask what do we want people to know in our society and then what are the reasonable and appropriate methods to insure that learning. That makes this question the core for thinking about the curriculum. With this perspective, what I have in mind is thinking about the content of vocational education in view of the practical problems or continuing concerns that we all have in work and in family life. This perspective suggests that the question of vocational education's subject matter starts with a focus on the practical problems of work and family life and "backs into" the academic disciplines to the extent needed and relevant for needed ideas and information (see Exhibit 2 for conceptual idea). My suggestion is to keep much of the focus we already have, but to also entertain what the impact of economics, sociology, psychology, and so forth might have on or contribute to the content of vocational education in a foundational sense.

Exhibit 2. Sources of Foundational Content for Vocational Education



Excerpts from Discussion Following Copa's Comments

Stuewer: It's not clear to me how you select those areas in the workplace in light of a rapidly changing economy, etc.; how you identify the areas you want to start with and then "back into" the academic disciplines?

Copa: We clearly need further advice and thought about this. We need to systematically identify and prioritize the important issues in the workplace and family changes, culture-bound assumptions, etc. We are paying a lot of attention to the interrelationships between vocational education and academics right now; ten years from now it might be something different. We want to avoid being time bound as much as possible.

If you identified all the problems you might encounter in work and family life, how would you map out that terrain? It may be an impossible task to teach resolution of all of the problems or even categories of problems. So we may have to go in and choose one or two areas and then suggest to others what else might be done.

McClelland: I want to comment on something. Marjorie Brown, a scholar in home economics education, always asks the following: "What is the desired state of affairs? What are the present conditions?" Where the two don't coincide, there is a practical problem. I would think a desired state of affairs in work settings would be to have some sense of control about work. It varies from person to person, of course, but most people need to feel some sort of control over their work. If you look at persons without a lot of autonomy and control, that is a problem. How to get the desired state of affairs is the difficult question.

Copa: Harry Silberman gave us some useful insights. He suggests we keep our focus on what we want students to know. It may be that what we want them to know and appreciate is mathematics, but it may be more important to understand that mathematics is important, and, secondly, that I need to go to mathematics to get what I need to understand to do this problem or

accomplish what I want to do. We want problems that "back into" the disciplines.

Bjorkquist: I want to talk about terminology. I suggest a different way of describing work and family responsibility. I would use the term employment rather than work. I think you are referring to employment when you separate it from family life. Work is a more encompassing term dealing with family responsibilities and community life as well. There are a lot of vocational aspects of life such as consumerism that need to be dealt with.

If you look at a hierarchical organization of employment, if you go to the lower levels of jobs, people are more inclined to equate work with employment. But many of those writing about work say it is an intentional, conscious effort to produce benefits. Others say another dimension of it is that the person must be conscious of being at work. So work is not only paid effort, but unpaid effort as well, inclusive of child rearing and other important home responsibilities. It includes volunteer work in the community. If there is any equation between work and vocation, and I think there is, then the vocational aspects of life should deal with those as well. Employment is just one of the dimensions of work.

Copa: One of the concerns I have with the words "work" and "employment" is that they have an activity orientation and perhaps an ends orientation, but very little in the way of a values orientation. There is no calling into question the values of the ends or the activity.

Bjorkquist: I don't think the terminology is either going to create or solve the problem of the moral issue, the ethical questions that people face in common situations. I would agree with you that it should be part of what we should deal with. Are you saying that the vocational aspects of life, family, community, and work adds an ethical consideration and preparation for being an active member in society, politically and morally?

Copa: Yes, the traditional meaning of vocation means service, originally to God, and later to the community. This gets us back to origins. It seems to me

that you are advising that it is important to spend some time thinking about the meaning of vocational education before we deal with its foundations. We must deal with the meaning of vocational education, what is its focus, its development? Is it work and family? Is it community? Is it all types of work? How is it unique? How is vocational education different from mathematics or English or other subjects? How is vocational education in schools different from vocational education in other educational settings? What is its content, its general concepts, its specialized concepts? Taking the long term view of what it means to be vocationally educated means it's a lifelong concept. Specific skills are important—maybe not important because they teach you to weld but because knowing how to weld contributes to self-esteem and confidence. You do something others value. What do we mean by vocational maturity at various ages? Is the content time and culture bound? We might spiral back over vocational issues again and again in our lives; they are not over and done with but encountered at age nine, at fifteen, at forty, and at sixty-five. How do we involve home, family, and the workplace in this process? These are the issues to deal with in respect to what we mean by vocational education.

Stuewer: How would you see this model leading to the educated person as defined by Peters?

Copa: Peters is slicing these things up in very abstract ways. I see his ideas at the center of the circle, but he is at a much more abstract level—discussing the kinds of characteristics you need to live well. One of the problems with vocational education is that we're often very concrete and specific in our ideas about subject matter and do not take time to explain relationships to more general or abstract educational goals. We stay too close to the specific practical problems of work and family life.

Stuewer: It looks rather like "ballooning."

Copa: It probably does. It does imply a different balance in the curriculum between the world of theory and action.

McClelland: What would the diagram look like if our interests were what should we know about physics? Would this be an intellectual problem, would it be practical problems of physics, or would it be physics education? I don't know what that would look like.

Lewis: How does this diagram differ from what has happened in social studies education?

LEADING QUESTIONS ABOUT THE FOUNDATIONS OF VOCATIONAL EDUCATION

Four questions were used to guide the discussions of the Study Group. These questions will be used to organize this chapter which serves as a synthesis of the Study Group discussions and a guide to the next steps in the program of research of which it is a part. The overall purpose of this program of research is to provide an intellectually sound conceptual framework for the subject matter of vocational education.

Foundations in a Curricular Context

In response to the question, "What is the meaning of foundations in a curricular context?" the Study Group adopted the following working definition: Study which engages students in a critical examination of the relationship between disciplines such as philosophy, literature, sociology, physics, and the ability to resolve practical problems encountered in the vocational aspects of life.

Implications for Foundations of Vocational Education

The second question underlying the role of the Study Group was, "What does this meaning of foundations imply for the foundations of vocational education?" Some of the implications apparent from Study Group discussions are listed on the following page.

1. Identification of foundational curricular content must be active on at least two fronts:

   a. Describing the practical problems encountered in the vocational aspects of life, and
   b. Describing the relevant concepts, theories, and insights from the academic disciplines (i.e., philosophy, sociology, physics);

2. Curricular content must relate the activities on these two fronts in a way that stimulates and facilitates interaction and interrelationship; and

3. Curricular content must be structured in a scope and sequence that is tailored to the level of vocational development of students.

In terms of interaction and interrelationship, there are at least four types of relationships evident in the definition of foundations: (1) the relation between a problem of the vocational aspects of life (i.e., What work should I pursue?) and the subject matter of a particular discipline (i.e., philosophy); (2) the relation between a particular discipline (i.e., sociology) and a problem of vocational life (i.e., What compensations should I expect for this work?); (3) the relation among selected disciplines in the context of the vocational aspects of life (i.e., philosophy, sociology); and (4) the relation among the problems of the vocational aspects of life (i.e., What work should I pursue? What compensations should I expect for that work?). The definition includes the ideas of "engaging students in critical examination" which implies that students would be actively thinking about relationships and be critical in respect to adequacy, coherence, and consistency in relations. A key phrase in the definition is the "vocational aspects of life" which is yet to be clearly defined.

Questions Bringing Out Foundational Subject Matter

Resulting from the content analysis of transcripts of discussions during the Study Group process was a series of leading questions needing address in describing the foundational subject matter of vocational education. At times the Study Group raised questions and at other times they suggested responses. What follows is a synthesis of questions and responses provided by the Study Group. Without resolution of these questions, very little progress is likely to be made in clarifying and providing an intellectual coherence to the subject matter of vocational education, including its foundational components.

Meaning of Vocational Education

Study Group discussions continually returned to questions about the meaning of vocational education. It was apparent that several different meanings were in use which sometimes resulted in a lack of communication and incongruence. From content analysis of Study Group conversations, the question of meaning was organized into four sub-questioning themes.

1. **What is the focus of vocational education?**

   Should the focus of vocational education be on vocational development, enhanced vocational maturity, both work and family life, all types and levels of work, and relevant for all students? Should vocational education have both a short range (i.e., learning applicable to present life) and a distant focus (i.e., maximize individual potential, ability to continue to learn)? Should vocational education, through its subject matter, serve as a for improving family, workplace, and other community conditions? Should vocational education's focus include both the problems encountered before entering work or significant family responsibilities as well as those problems encountered thereafter? Should vocational education limit its focus to that prescribed by federal legislation addressing vocational education, understanding that the latter is likely to be very time bound (to the issues of the day) and politically rather than intellectually oriented? Should vocational education be more concerned with its role and responsibilities as a part of general education rather than from a separate field of study? As such, should vocational education concern itself with education *about* work and family life in our society, and education *for* work and family responsibilities? Should vocational education focus on helping individuals resolve the practical problems they are encountering in work and family life? Practical problems were defined as those representing a discrepancy between a desired state of affairs in work and family life and present conditions. Since practical problems are very numerous, should a framework be developed to organize these problems into related clusters and criteria formulated for strategically selecting problems to be addressed in vocational education? What should the relationship of vocational education be to concepts such as work, family, vocation, career, technical, applied technology, professional, employment, job, and training? Once the focus of vocational education is clearly apparent and accepted, should its name be changed?

2. **How is vocational education unique and how is it the same as the rest of education?**

Should vocational education's role in schools, and particularly secondary schools, be defined in relationship to learning going on at the same time in other settings (i.e., home, workplace, community) and in other areas of study (i.e., English, social studies), and learning that has come before or will occur after the study of vocational education? Should vocational education be viewed as more a part of general education and should it be expected to contribute to the achievement of general education? Should vocational education's uniqueness lay in its directedness of learning to enhancing opportunities and effectiveness in work and family responsibilities? Can another dimension of uniqueness be found in vocational education's comparative advantage, relative to other fields of study, in areas such as using experiential and cooperative learning strategies?

3. **What is vocational education's content?**

Should vocational education's content be rationalized in relationship to the concept and needs of an "educated person"? Should its content include attention to the interpretive and emancipative interests of students as well as to their technical interests? Interpretive interests concern questions related to the meaning of work and family responsibilities to an individual. Emancipative interests concern questions of communication, power, and contradiction in work and family life. Technical interests, on the other hand, concern means-ends relationships and how to accomplish work and family responsibilities. While the content of vocational education will always be time and culture bound to some degree, should attention be more to the long term and concerns of work and family responsibilities which are perennial and continuing—those that will be encountered over and over again throughout life? Should the learning of specific skills be reaffirmed as an important component of vocational education? Should the content of vocational education be sequenced so as to be responsive to the development tasks encountered in vocational life and in order to give meaning to the idea of vocational maturity?

4. **What are vocational education's methods?**

Should the methods of vocational education be separated from consideration of context—can this actually be done? What should be the role of practice in the methods of vocational education? Should the methods of vocational education

include education in, about, for, and through focus on work and family responsibilities? Should the methods involve the home, workplace, and larger community? Should the emphasis on hands-on or experiential learning be continued even as work and family life change to include more cognitive tasks? What should be the range of organizational arrangements for "vocational education" (i.e., comprehensive high schools, area centers, magnate schools, postsecondary institutes, colleges)? What should be the range in opportunities to participate in vocational education with different intensities and purposes (i.e., explore, concentrate)? How should the social and technological updatedness of vocational education be maintained? What support services are needed for a diversity of students to be successful in vocational education? How should the vocational education staff collaborate with other school staff members?

Structural Questions Which are Foundational

Another set of questions which emerged from discussions by the Study Group had to do with the structure of society, schools, and vocational education rather than its meaning. Participants noted that their questions had very direct implications for the subject matter of vocational education and its relationship to the academic disciplines. The following is a listing of the structural issues which were of concern to participants.

How should schools be prevented from using vocational education as a societal and economic stratification strategy? How should the content of vocational education be kept from being "ballooned" to the point where it is not feasible to be included in the school along with everything else? How should the integrity of the content of vocational education (and other subject matter areas) be kept intact and yet provide for integration of learning? How should vocational education teach that all work and family roles have dignity when this is not evident in our society? What value perspective and stance should be taken to avoid the frequent negative reactions from education and some of the public when attention to work and family life is introduced into schools? How should assurance be provided that vocational education *and* other coursework taken by students of vocational education is rigorous and coherent? How should the content of vocational education be kept from being "leveled down" by an emphasis on entry-level skills, special needs students, and exploration of work and family responsibilities? How should vocational education insure that it is a part of the "mainstream" of education? How should vocational education be

prevented from being perceived as a "dumping ground" for poor ability students? What values should be used to communicate about the "status" of vocational education? Who should be addressed with these communications? How should schools provide for the integration of learning and learners (rather than fragmentation and segregation) between vocational education and other areas of the curriculum? For example, do the common problems of work and family life provide a focus for integrating learning? Should the school curriculum be organized in another way rather than by specialization of subject matter and achievement of general education through a "distribution" requirement? Should students be described as students of vocational education and not as vocational education students? What would be lost to the school if vocational education were eliminated? Who would lose and who would gain?

Foundational Components of Subject Matter

Another area of questions identified in the Study Group discussion was directly related to the foundational components of the subject matter of vocational education. Should the foundational component be considered the same as the common areas or core of the subject matter of vocational education? Is more depth or breadth preferred in the foundational component? Should the foundational component be defined in terms of subject matter (and relations to disciplines) or as student learning outcomes? Should the foundational component come before or during study of other components of the subject matter of vocational education? Who should define the foundational components of the subject matter? How should the foundations of vocational education be related to foundational study in other areas of the curriculum? How should the disciplinary content be transformed in order to be foundational to vocational education? Should the question concerning foundations be, "What do the academic disciplines have to say about this problem encountered in the vocational aspects of life?"

Method of Response in Pursuit of the Foundations of Vocational Education

The last question posed as a purpose for Study Group discussions was "What method(s) should be used to respond to the above questions?" Overall, the advice of the Study Group was as follows:

1. Questioning should start from the practical problems faced in the vocational aspects of life and "back into" the needed foundational content from academic disciplines

rather than vice versa. Starting in this way keeps the foundation content relevant and the learning experience motivational to students. The practical problems might be clustered into more general, recurring, and continuing concerns of individuals as they experience and manage their vocational lives. Problem areas might then be strategically selected so as to gain the needed breadth that goes with being an "educated person."

2. Questioning should confront the basic moral issues relating to the social status of vocational education. Two of these basic issues already identified are the social and economic *stratification* which may be occurring in schools through explicit or implicit curricular tracking of students and the *structure* of our society (as for example, depicted in organization charts, job descriptions, interrelationships between organizations) which may need to be confronted if stratification is to be removed.

3. Questioning should seek to enhance certain characteristics of vocational education to include (1) further mainstreaming of vocational education as an integral part of general education; (2) a building on vocational education's comparative advantage in certain learner outcomes and instructional methods such as cooperation, application, and experiential learning; (3) a strengthening of vocational education's role as change maker in improving the conditions of vocational life; (4) using vocational education to provide a more complete general education *through* study of the vocational aspects of life (i.e., work and family responsibilities); and by (5) insuring that vocational education addresses interpretive and emancipative aspects of vocational life as well as the technical aspects.